

**Department of the Navy**  
*1997 Posture Statement*  
***The Navy-Marine Corps Team***



*Enduring Impact. . .From The Sea*



# DEPARTMENT OF THE NAVY

## 1997 POSTURE STATEMENT


This posture statement explains the Department of the Navy's mission, our accomplishments this past year and the priorities that guide our decision making. In 1997, we will continue the focus on four broad departmental themes: people, readiness, technology, and efficiency. In each of these areas, the Navy and Marine Corps will balance current operational and budget demands with our strategic vision and projected force requirements for the 21st century.

Recent operations around the world demonstrate the continuing requirement for naval forces that are ready, capable, and forward deployed. These sea-based forces are vital to regional stability and to containing crises. It is our forward presence that makes naval forces the right force, tailor-made for these uncertain and challenging times. They are the rheostat of national response capabilities — forces that use the world's oceans as a means of access and as a base and are equally effective across the full range of missions, from peacetime engagement, crisis response and deterrence, to warfighting campaign operations in support of a joint commander.

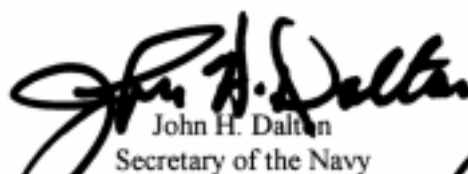
Our Sailors, Marines, and civilians remain the heart and soul of the Navy and Marine Corps. The readiness of our force depends first and foremost on the men and women who comprise our team and the training and equipment we provide them. Building on a firm foundation of proven leadership, strong character, and ethical behavior, the Department will continue policies that protect individual dignity and respect for all personnel. We are also committed to providing the highest quality of life possible for our men and women and their families.

The Department continues to foster an environment conducive to revolutionary thinking and innovation. In addition, we are pursuing an aggressive acquisition reform strategy while developing promising technologies for tomorrow's Navy and Marine Corps. These initiatives and reforms will allow us to press forward in our modernization and recapitalization programs. Our goal for 1997 is to maximize efficiencies in our research, development and acquisition processes to ensure that our next generation of systems and equipment are cost effective, mobile, affordable, and capable.

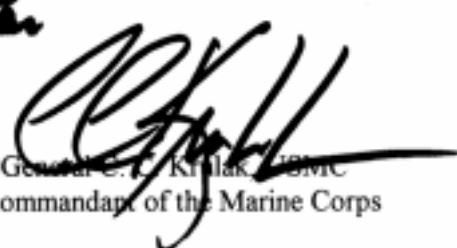
Today, naval expeditionary forces are underway, ready and on-scene at trouble spots around the world. As you read through the following pages, you will see that our Sailors and Marines are well-prepared to respond to any mission ordered by the National Command Authorities. The Navy-Marine Corps team will continue to provide the premier forces from the sea that are adaptive, ready and forward-deployed to support the Nation's interests around the world — now and into the future.



Admiral Jay L. Johnson, USN  
Chief of Naval Operations



John H. Dalton  
Secretary of the Navy



General E. C. Krulak, USMC  
Commandant of the Marine Corps

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# I. THE NAVY-MARINE CORPS TEAM

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## The Nation's Force in Readiness — *Forward ...From The Sea*



Events of the past year have reaffirmed the enduring significance that forward-deployed, combat ready naval forces play in shaping the strategic environment. In March, carriers *Nimitz* (CVN 68) and *Independence* (CV 62) and their carrier battle groups moved into the South China Sea in a measured but swift response to rising tensions in the Taiwan Strait. From April through August, the 22d Marine Expeditionary Unit, as the joint task force commander, and the ready group with amphibious assault ship *Guam* (LPH 9) evacuated 757 U.S. citizens and country nationals from Liberia and the Central African Republic. Also, in September, the *Carl Vinson* (CVN 70) carrier battle group was the centerpiece of a joint response to Iraqi aggression against the Kurds. Daily, U.S. naval forces demonstrate their ability to support and defend our national security interests through highly visible forward presence, expeditionary readiness, and potent on-scene power projection capability. Sea-based forces are sovereign extensions of our nation, operating in international waters. They are unencumbered by the treaties and access agreements that land-based forces normally need to operate overseas. Naval forces also offer the flexibility of acting

within full view of a potential aggressor, over the horizon, or submerged and totally undetected.



Naval forces play a pivotal role in supporting our national interests and the objectives as defined by the *National Security Strategy* and *National Military Strategy*. Our prosperity hinges on the sea: 70% of the world's population lives within 200 miles of the sea; 80% of the world's capitals lie within 300 miles of the sea; and 99% of all U.S. overseas trade travel on the seas. We are indeed a maritime nation.

The Navy-Marine Corps white paper *Forward ...From the Sea* focuses on the importance of littoral operations and the daily presence of our naval forces around the world in meeting our national security objectives. Forward presence enhances regional stability through peacetime engagement, underscores U.S. resolve, bolsters deterrence, prevents and contains crises, reassures allies, and lays the groundwork for successful coalition operations. Similarly, the capabilities of our expeditionary naval forces are especially critical in the initial stages of a developing situation, when rapidly responding, combat credible forces heavily influence the outcome. Moreover, naval forces present a unique range of options to the National



Command Authorities (NCA). By using the oceans as both a means of access and as a base, forward-deployed Navy and Marine air, land, and sea forces provide the NCA with a rheostat of national response capabilities.

### **The Navy-Marine Corps Team: The Embodiment of Jointness**

Naval forces also provide the joint force commander a full range of land- and sea-based military options flexibly tailored for peacetime missions, crisis response, or conflict. Naval forces are typically the first to arrive at the scene of a crisis; once there, they shape the battlespace for further joint operations. By attacking the enemy's infrastructure, seizing and defending key ports and airfields, sustaining the flow of sea-based logistics, and (in the future) providing sea-based theater missile defense, naval forces carry the fight until the heavier land-based forces are able to build up combat power ashore and achieve the full warfighting potential of a fully integrated joint force. In addition, naval forces can establish a temporary or permanent joint task force (JTF) command structure. Carrier battle groups and amphibious ready groups are ideally suited for assuming these duties in the initial stages of a crisis, while our numbered-Fleet command ships are capable of establishing a long term, national base for JTF command and control from the sea. The built-in command, control, and communication links of our carriers, amphibious assault and command ships, along

with their ability to integrate quickly with forces from other services, are key factors in establishing a joint force. Naval forces also can establish a JTF Headquarters ashore, when needed. The II Marine Expeditionary Force is leading the effort to establish a premier standing JTF Headquarters. This Marine Corps initiative provides regional commanders with a ready-made organization that trains together and can deploy rapidly. The standing JTF Headquarters contains the command-and-control links necessary to conduct joint operations. On a smaller scale, all forward-deployed amphibious ready groups and their embarked Marine expeditionary units are being upgraded to assume a limited JTF Headquarters role when required. The Navy-Marine Corps team is the critical catalyst for joint operations.



Most important, naval forces are adaptive forces for uncertain times. The Navy and Marine Corps continue to exploit the synergy created when carefully tailored naval forces are dispatched to the scene of a crisis. In addition to forward-deployed carrier battle groups and amphibious ready groups with embarked Marine expeditionary units, specifically tailored battle groups and special purpose Marine air-ground task forces provide regional commanders with the precise tools they need.

Overall, naval forces provide our nation with a rapid response force: persuasive in peace,

compelling in crisis, and capable throughout the full range of conflict. Whether the mission is humanitarian assistance, crisis response, or conflict resolution, adaptable forces from the sea, operating independently or jointly, are a powerful instrument for carrying out national policy.



To ensure that the capabilities we acquire are appropriate for such a wide range of functions, the Navy and Marine Corps use joint coordination groups to discuss, evaluate, and propose to the leadership anticipated requirements for the two Services. The process allows the Navy-Marine Corps team to voice requirements within the joint arena from a single naval perspective. This teamwork also is occurring in the budget process. As the only military department with two services, the Department of the Navy must coordinate its budget submissions closely to improve efficiencies and create a more cohesive product. Such integration leads to better support of our overall naval strategy.

### **A Focus on the Future**

The Department of the Navy is proud of its heritage of innovative thinking and its long-standing contributions to national security. In 1991, the Navy-Marine Corps team examined the changing world environment and recognized

that the ending of the Cold War era would require a move away from the standing *Maritime Strategy*. We responded with the publication of our landmark white papers: *...From the Sea* and *Forward...From the Sea*. These documents focused both the Navy and Marine Corps on the critical littoral regions of the world, while capturing the unique capabilities of each service. They also established the foundation for operational concepts that will drive our future doctrine and ensure our continued operational primacy. “Operational Maneuver from the Sea,” signed by the Commandant of the Marine Corps in January 1996, is one example. This capstone document details a naval concept for the projection of power ashore, exploits the Navy-Marine Corps team’s expeditionary capabilities, and provides a framework for applying maneuver warfare to maritime operations during a joint campaign. Similarly, the Chief of Naval Operations will sign the Navy’s Operational Concept in early 1997. This seminal document describes how the Navy operates forward from the sea to carry out the three components of the National Military Strategy: peacetime engagement; deterrence and conflict prevention; and fight and win. It explains the vital role of the Navy in future joint operations envisioned in *Joint Vision 2010*.



With the Chairman of the Joint Chief of Staff’s strategic vision, *Joint Vision 2010*, and the



recently approved Joint Strategy Review as guides, the Department of the Navy aggressively is preparing for the future warfare environment. Organizations such as the Naval Doctrine Command and the Marine Corps Combat Development Command are working on concepts to make the capabilities of sea-based forces most

useful to the joint force. Both services are examining these concepts through test beds such as the Commandant's Warfighting Lab, the Navy's Fleet Battle Experiments, and the recently approved "Extending the Littoral Battlespace" advanced concept technology demonstration.

## II. NAVAL EXPEDITIONARY FORCES

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### EXECUTING THE NATIONAL MILITARY STRATEGY TODAY

Our *National Military Strategy of Flexible and Selective Engagement* defines two national military objectives: promoting stability and thwarting aggression. It also outlines three sets of tasks: peacetime engagement; deterrence and conflict prevention; and fight and win. Because we are a maritime nation with vital economic and security interests that span the earth's oceans, we must meet the military objectives through overseas presence and power projection, which naval forces are ideally suited to execute. Indeed, forward presence and power projection form the centerpiece of strategic guidance in the white papers ...*From the Sea and Forward ... From the Sea*.



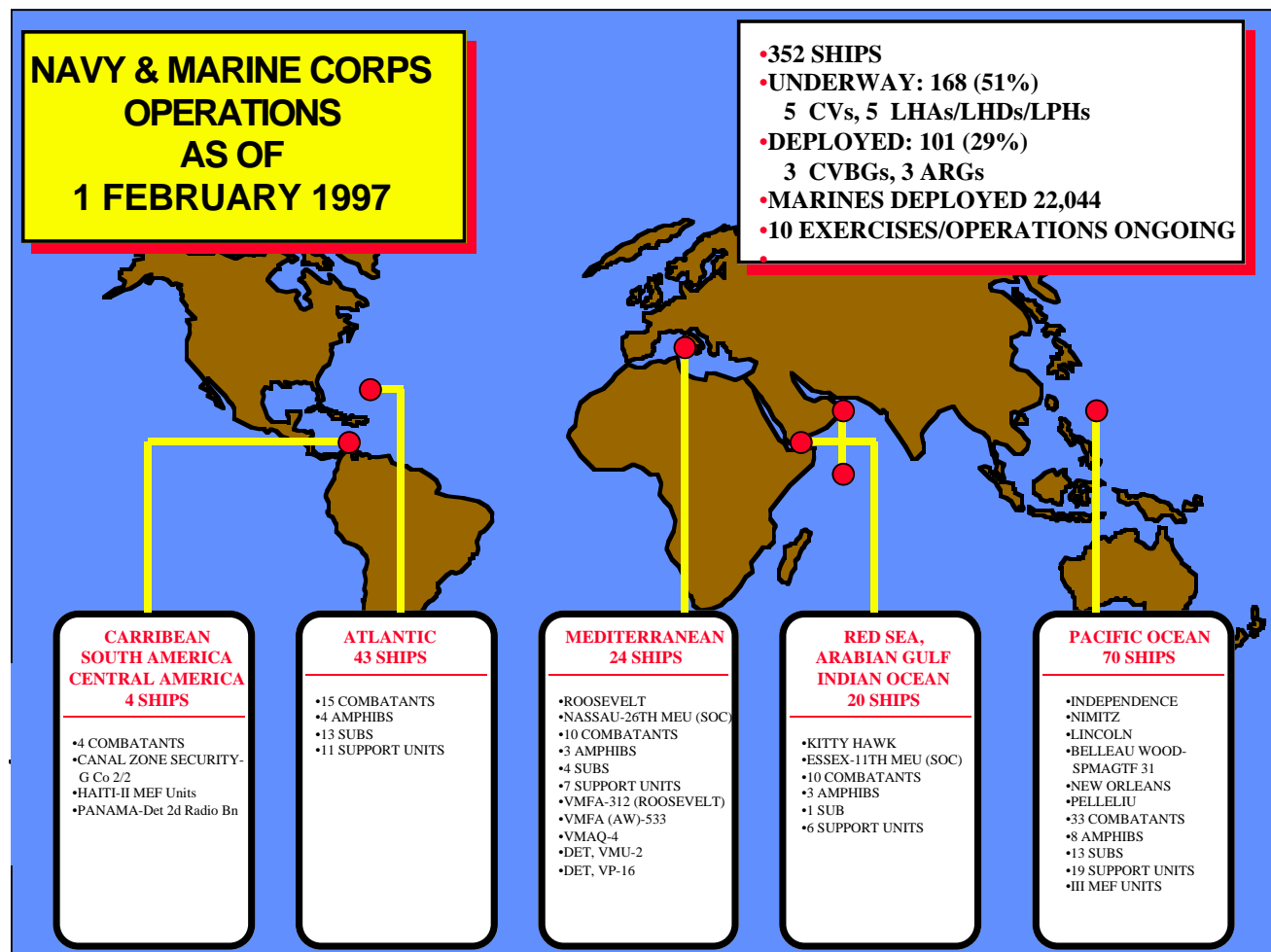
U.S. naval forces remain a critical ingredient in promoting and protecting national interests. *Joint Vision 2010* outlines a plan for achieving the objectives set by our *National Military Strategy* - a strategy revalidated by the *Joint Strategy*

Review, and one that demands the capabilities of sea-based forces. *Joint Vision 2010* also notes the rapid advances in command, control, and intelligence capabilities, and links information superiority with emerging technologies to create four new operational concepts: dominant maneuver; precision engagement; full-dimensional protection; and focused logistics. These concepts highlight many of the unique capabilities that sea-based forces possess today, and provide a framework for 21st-century execution of our enduring strategic concepts of overseas presence and power projection. They will enhance our naval forces' ability to continue to play a critical role: *persuasive in peace, compelling in crisis, and capable in every aspect of war.*

### Persuasive in Peace

Naval forces play a unique and vital role in maintaining U.S. overseas presence. Their full com-

bat capability, inherent mobility, and capacity for self-sustained operations make them an expeditionary force without peer. A balanced, forward-deployed naval force serves multiple purposes. Simultaneously, it can reassure friends and allies, build and enhance coalition interoperability, deter potential aggressors, and respond effectively to crisis or war. On any given day, roughly 30% of the Navy and Marine Corps' operating forces -- more than 50,000 men and women and 100 ships -- are deployed throughout the world. Our carrier battle groups and amphibious ready groups with embarked Marine expeditionary units are forward-deployed to achieve near-continuous presence in four major deployment hubs: the Mediterranean Sea, the Arabian Gulf/Indian Ocean, the Western Pacific, and the Caribbean. In Japan, we maintain a Marine expeditionary force as well as the forward-stationed *Independence* (CV 62) battle group and the *Belleau Wood* (LHA 3) amphibious ready



group. Finally, the Navy's Western Hemisphere Group specifically is focused on supporting our nation's counterdrug efforts as well as strengthening and improving our ties to Caribbean and South American friends and allies. From these strategically placed forward locations, naval forces can deploy quickly to crisis areas outside these regions.



Naval forces participate in the full range of peacetime-engagement activities. This year alone, Navy ships made 1,629 port visits to 99 nations, including such frequently visited ports as Fremantle, Australia, and Naples, Italy, and ports where U.S. forces are seldom seen - such as Shanghai, China, and St. Petersburg, Russia. Each of these visits provided enormous benefits through military-to-military contacts and goodwill established with local communities. These ships hosted hundreds of thousands of visitors onboard. In return, more than 20,000 Sailors and Marines went into nearby communities to participate in numerous public-service projects, such as refurbishing schools and orphanages and providing basic medical care.

Navy and Marine Corps cooperative efforts with the sea, land, and air forces of friends and allies are essential to successful coalition building. The enhanced relationships and interoperability -- gained through 160 major multinational and bilateral exercises with 64 different countries -- increase U.S. capability and credibility in forming and maintaining coalition partnerships to deter ag-



gression and control crises. Because sea-based forces do not require sophisticated support facilities ashore to operate with other nations, the burden imposed on any exercising partner's infrastructure is limited. Ultimately, the interaction of our naval forces with other nations provides tangible evidence of our commitment to peace and regional security.

Naval forces also are critical to joint force information superiority. They extend the national command, control, communication, computer, intelligence, surveillance, and reconnaissance (C4ISR) system throughout the littorals in peacetime, enabling the intelligence preparation of a potential battlespace well before crises or conflicts. These forces maintain operational familiarity with potential areas of conflict, and with coalition partners and potential adversaries. Our contribution to information superiority is critical today, and will be even more significant in joint warfare of the future.

Recurring natural disasters, civil wars, and challenges to international law and order have led to an increase in the number of military operations other than war -- including humanitarian relief, counterdrug, counterterrorism, and peace operations. These efforts usually require the disciplined, highly mobile, self-contained, and well-organized response capabilities inherent in our military services. Forward-deployed in a high state of readiness, naval expeditionary forces are especially attractive candidates to conduct these types of operations.



As a key tenet of our *National Military Strategy*, our military forces must present a credible deterrent to an adversary's most potent weapon. As long as nuclear weapons are deployed in a manner that threatens our homeland or other national interests, we must continue to discourage their proliferation and use. Fundamental to overall nuclear deterrence is our highly mobile and capable strategic ballistic missile submarine force. This force, able to remain undetected at sea, is the most survivable element of the Nation's strategic nuclear triad.



Forces based in the continental United States do contribute, but the key to successful conventional deterrence lies in combat-credible forces overseas. Visible forward-deployed naval expeditionary forces clearly convey to potential aggressors our capability to both deny and punish — and to do so quickly and effectively. These forces also are bought and paid for as part of our budget. A distinct advantage of naval expeditionary forces is their ability to act as sovereign extensions of our nation, free of the political encumbrances that might inhibit or limit the employment of ground and land-based air forces. Our conventional deterrence capability enhances regional stability by deterring aggression and reassuring allies and friendly nations of our commitment to their well-being. These naval capabilities combine to make our forces truly *persuasive in peace*.

### Compelling in Crisis

Naval forces involved in peacetime engagement also serve the nation by providing immediate crisis



response capabilities. Their expeditionary character becomes more pronounced when nations are reluctant to offer visible support or grant access, either for fear of reprisal or because the warning is ambiguous. Operating in an uncertain world, the Navy-Marine Corps team -- highly mobile, self-sustaining, and responsive in nature -- is a prudent first choice when our national interests are threatened. Naval forces, on scene at the onset of a crisis or conflict, represent the Nation's willingness to act and share in the risks. To limit the extent of a crisis, U.S. leadership is provided a wide range of options, including: naval fires for fire support, interdiction and strike missions; amphibious operations; special operations; and Marine air-ground task force operations ashore. These forces also serve as the immediately available and visible forward element of the powerful combination of joint forces that can be projected from the continental United States. These attributes result in naval forces frequently being used as an instrument of our foreign policy. Naval forces are suited ideally for conducting rapid noncombatant evacuation operations when U.S. citizens or foreign nationals are at risk, supporting U.N. sanctions or crisis response. A number of operations, that clearly demonstrated naval crisis-response capabilities during the past year, are discussed in the following chapter.

An increasingly important issue in promoting regional stability during a crisis is our emerging ability to extend theater missile defenses (TMD) to joint forces, friends, and allies — unobtrusively, from offshore. Mobile, sea-based TMD will enhance the

security and safety of friendly nations by providing defense against missile attacks by rogue states. Building on the existing Aegis system, the Navy is vigorously pursuing area and theater missile defense capabilities.

The Navy-Marine Corps team continues to be a powerful, visible, and credible instrument for supporting national policies and preventing conflict. Forward-deployed naval forces, expeditionary and adaptive in nature, are the preeminent force for deterrence and conflict prevention, and they are able to bring sustained, decisive force to bear when required. Naval forces protect our Nation's global interests — most of which reside within the littorals. Their on-scene capability, ready to respond immediately to the nation's tasking, makes them *compelling in crisis*.



### Capable in Every Aspect of War

The ability to fight and win against any adversary is the irreducible core of the U.S. military. Naval forces are an integral part of this joint capability. When deterrence fails, forward-deployed naval forces, working with other U.S. and coalition forces, must blunt an adversary's offensive, prevent it from consolidating its position, and protect friendly forces until additional combat power can arrive in theater. The speed and flexibility of these forward-deployed naval forces provide the National Command Authorities with viable options during the initial stages of a crisis or conflict. In recent years, rapid repositioning of



carrier battle groups and amphibious ready groups with embarked Marines has been instrumental to national policy execution. The acquisition and deployment of the F/A-18 E/F will enhance significantly our strike capability and will ensure continued air superiority in future conflicts.

Naval forces must guarantee maritime superiority and provide strategic sealift to transport joint and allied forces into theater. Using the sea as a secure maneuver space, naval forces can ensure dominant maneuver at the operational level, throughout the littorals. The sea-control, strategic-sealift, and forcible-entry capabilities inherent in our naval forces are essential to attaining dominant maneuver by joint forces. Procurement and development of the MV-22 Osprey tilt rotor aircraft and the advanced amphibious assault vehicle, coupled with the present utility of the air cushion landing craft and highly capable amphibious shipping, will provide improved tactical and operational mobility for over-the-horizon maneuver. The threat of amphibious operations disrupts enemy planning and execution, forcing it either to concentrate its forces at the most likely avenues of approach or to spread his defenses to cover the entire threatened area. In either case, the enemy's action — or inaction — will expose gaps and vulnerabilities that joint or combined forces can exploit.

Maneuver operations from the sea provide an opportunity to exploit unique naval advantages in executing precision engagement. Naval precision engagement underscores the Navy-Marine Corps team's ability to tailor force packages for specialized and task-organized missions, to employ special-operations forces and Marine air-ground task forces, and to deliver extremely accurate and high-volume naval fires. We are leveraging technology aggressively to enhance precision engagement and destroy targets that become exposed in the course of our dominant maneuver.

Emerging technology will allow naval forces to employ a wide range of ordnance against targets ashore. Our weapons can be delivered from a variety of platforms, with unprecedented flexibility and lethality. These fires can be launched from well be-



yond an opponent's reach. Sea-based engagement permits rapid maneuver and sustained concentration of lethal fires from far less vulnerable positions. Integrating precision fires with extensive command, control, computer, communication, intelligence, surveillance and reconnaissance (C4ISR) will allow us to transmit quickly tasking orders for strike, interdiction, and fire support, to deliver accurately the appropriate ordnance, to conduct timely battle damage assessment, and to reattack when required. In 1996, the Navy's Cooperative Engagement Capability, which links sea, air, and land sensors to firing platforms for air and missile defense, supported the first-ever successful engagement of an air target that was well beyond a firing unit's radar horizon. Improvements in Tomahawk cruise missiles and innovations in naval surface fire support and weaponry

— such as the Arsenal Ship and improved munitions, to include the extended range guided munition and a Navy tactical missile system — hold the potential to increase dramatically the ability to conduct precision-engagement operations.

Naval forces also provide the defensive umbrella under which joint and combined forces can deploy safely during a conflict. These forces counter enemy threats from the air, land, or sea. Beyond defensive measures, naval contributions to full-dimensional protection will include offensive initiatives to eliminate potential threats at the source. Sea-based defenses will, in many circumstances, be the only capability available at the onset of a crisis. They provide critical protection to forces flowing into theater by airlift, sealift, or prepositioning ships.

The future long-range delivery of weapons of mass destruction will increase the importance of force protection for U.S., allied, and coalition forces. The emergence of naval theater missile defense capabilities will reassure potential coalition partners and allies, and will be critical for gaining access to overseas bases and infrastructure. Another critical part of full-dimensional protection are units such as the Marine Corps Fleet Antiterrorism Security Teams and the Chemical-Biological Incident Response Force. These units provide protection against terrorism and consequence management for chemical and biological incidents, respectively.

Controlling the undersea battlespace remains a unique naval capability and is a vital aspect of sea control. Our dominance in this arena counters the threat posed by advanced capability submarines and sea mines and enables early preparation of the battlespace through surveillance and intelligence collection. In addition, since over 90% of material required to support a land campaign arrives by sea, undersea battlespace dominance ensures other elements of the joint force may transit successfully to the objective. Concern with the growing challenge posed by submerged threats to our power projection forces prompted the Navy to establish the "Anti-Submarine Warfare



Requirements Division” under the Deputy Chief of Naval Operations for Resource and Warfare Requirements. This organization assesses the Navy’s undersea warfare capabilities to ensure continued undersea battlespace dominance.



Naval forces provide the strategic sealift to transport forces into theater and to ensure the uninterrupted flow of logistical support — the lifeblood of any military operation. Self-sustaining endurance is an intrinsic strength of naval expeditionary forces. As the vulnerability of large stockpiles ashore continues to increase, sea-based logistics will become even more important. The Navy and Marine Corps are experimenting actively with innovative concepts to overcome the logistic challenges associated with supporting a land campaign from the sea. Future developments in the Maritime Prepositioning Force and advances in ship design are part of the answer to these challenges. Providing focused logistics from the sea in support of forces throughout the littorals will become a reality, as innovative concepts reducing logistic requirements are tested and proved.



Naval forces make critical contributions during all phases of conflict, to include: maritime, air, and information superiority; Marine air-ground task force, Maritime Prepositioning Force, and amphibious operations; precise naval fires for fire support, interdiction, and strike; special forces operations; and crucial sea-based logistics. This wide range of missions demonstrate our naval force *capabilities in every aspect of war*.

### **Total Force Integration**

To ensure success, throughout the full range of missions that have been discussed, requires the seamless integration of active and reserve forces in the Total Force package. This is critical with today’s smaller active-duty force strength. Unprecedented levels of Reserve support in 1996 have increased reserve readiness while helping to maintain an acceptable operational tempo for our active forces. Through this total integration of our active and reserve forces, naval capabilities are further enhanced and our overall ability to meet all taskings is increased.

In conclusion, our continued operational primacy depends on the total integration of our warfighting capabilities. Proliferation of precision technology will make it increasingly dangerous to mass forces ashore, especially in the early stages of a conflict. During this period, joint force commanders can look to naval forces to provide fire support, logistics, and operational maneuver from the sea. Forward-deployed naval forces serve as a catalyst for joint operations. Our capabilities fully support *Joint Vision 2010* operational concepts of dominant maneuver, precision engagement, full-dimension protection, and focused logistics.





from the European theater's amphibious ready group (ARG) and Marine expeditionary unit (special-operations capable) (MEU [SOC]) supplied vital support to U.N. forces.



**Adriatic Sea: Operation Sharp Guard** (June 1993-December 1995)/**Operation Decisive Enhancement** (December 1995-December 1996)/**Operation Determined Guard** (December 1996-Present). U.S. naval forces, including surface combatants, intelligence-gathering attack submarines, and active and reserve maritime patrol aircraft, operated with NATO and the Western European Union to enforce the U.N. sanctions in the former Yugoslavia. Over the past three years, 73,000 ships have been challenged. Among these, more than 5,800 were inspected at sea and another 1,400 were diverted for inspections in port.

**Bosnia-Herzegovina: Operation Joint Endeavor** (December 1995-December 1996)/**Operation Joint Guard** (December 1996-present). The European Command's ARG/MEU(SOC) was assigned as theater reserve for NATO forces, while Naval Mobile Construction Battalions 133 and 40 constructed base camps for Implementation Force personnel. In addition, from June to October a Marine Corps unmanned aerial vehicle (UAV) squadron, VMU-1, supported the operation with Pioneer UAV imagery both to U.S. and multinational units. VMU-2 continues to provide similar support.

**Bosnia-Herzegovina: Operation Deny Flight** (July 1993-December 1995)/**Operation Decisive Edge** (January-December 1996)/**Operation Deliberate Guard** (December 1996-Present). Operation Deny Flight transitioned to Decisive Edge in support of the Implementation Force (IFOR) Operation Joint Endeavor. Operation Decisive Edge then transitioned to Deliberate Guard in support of the Stabilization Force (SFOR) Operation Joint Guard. Carrier and shore based squadrons continued flight operations in support of joint and combined enforcement of a U.N.-mandated no-fly zone in the airspace over the Republic of Bosnia-Herzegovina. Throughout the year, Italy-based Marine F/A-18D and EA-6B aircraft provided suppression of enemy air defenses, close air support, and electronic warfare to IFOR. This included support from the Tactical Electronic Reconnaissance Processing Evaluation System that provided critical, analyzed intelligence information to the area commanders. In addition, Navy maritime patrol aircraft, equipped with electro-optical sensors, provided real-time, still and full motion video imagery to the ground commanders.

## AFRICA

**Liberia: Operation Assured Response** (April-August 1996). As a result of factional fighting and general violence in Liberia, the exceptional flexibility and capabilities of naval forces were again showcased. In early April, elements of the *Guam* (LPH 9) amphibious ready group (ARG) and 22d MEU (SOC), were ordered to the vicinity of Monrovia, Liberia. Upon arrival, the 22d MEU (SOC) commanding officer assumed command of Joint Task Force - Assured Response (JTF-AR), which included Air Force, Navy and Marine forces. With additional support from an MH-53E helicopter detachment and other Navy-Marine Corps aircraft, embassy security and transportation were provided and 309 noncombatants were evacuated — including 49 U.S. citizens. While still conducting this operation, elements of

JTF-AR were ordered to Bangui, Central African Republic, to conduct similar operations. A special purpose Marine air-ground task force, embarked in *Ponce* (LPD 15) and with ten days' notice, relieved the *Guam* task force and assumed the duties of CJTF-AR. This was done to allow the



*Guam* ready group and 22d MEU(SOC) to return to the Adriatic Sea and provide the European Command's desired over-the-horizon presence during the Bosnian national elections.

**Central African Republic: Operation Quick Response** (May-August 1996). In response to civil unrest and rebellion by rogue military elements in the Central African Republic, the same Navy-Marine Corps team that responded in Liberia successfully provided security to the U.S. Embassy and evacuated 448 noncombatants, including 208 American citizens.

**Zaire/Rwanda: Operation Guardian Assistance** (November-December 1996). To assist in the large humanitarian effort in Africa, Navy P-3C aircraft, which were forward-deployed to the Mediterranean, detached to Entebbe, Uganda. The crew and aircraft provided critical overland surveillance data to the joint task force commander. This information on the mass movement of refugees from Rwanda to Zaire assisted national-level policymakers in responding to changing needs. The timely distribution and evaluation of this data prevented the unnecessary deployment of a multinational force.

## SOUTHWEST ASIA

**Iraq: Operation Southern Watch** (1991-present). U.S. Navy, Marine, and Air Force units continued to enforce the U.N.-mandated no-fly zone over Iraq protecting Iraqi minority populations. Naval operations in 1996 included extensive Navy and Marine aircraft sorties from carriers *America* (CV 66), *Nimitz* (CVN 68), *George Washington* (CVN 73), *Carl Vinson* (CVN 70), *Enterprise* (CVN 65), *Kitty Hawk* (CV 63), and amphibious assault ship *Peleliu* (LHA 4).



**Iraq: Operation Desert Strike** (September 1996). Despite warnings from the United States, Iraq moved 40,000 troops into Northern Iraq, which threatened the Kurdish population. In response, the President ordered a strike on military targets posing a threat to coalition aircraft in the



no-fly zone. On 3 September 1996, a coordinated cruise missile attack on the Iraqi air defense infrastructure was launched. *Laboon* (DDG 58) and *Shiloh* (CG 67) fired 14 of the 27 cruise missiles while Air Force B-52s, escorted by F-14s from *Carl Vinson* (CVN 70), fired the remaining 13. The following day, a second strike of 17 Tomahawks from destroyers *Russell* (DDG 59), *Hewitt* (DD 966), *Laboon* and nuclear-powered attack submarine *Jefferson City* (SSN 759) was conducted. The speed and flexibility of forward-deployed naval forces was demonstrated following the initial strike. *Enterprise* (CVN 65) departed the Adriatic Sea on order of the National Command Authorities and conducted a high speed transit through the Suez Canal. Her arrival in the theater two days later enhanced the overall force disposition in the Persian Gulf and further demonstrated U.S. resolve.

**Saudi Arabia: Operation Desert Focus** (July 1996-present). The I Marine Expeditionary Force provided counterintelligence team support to Joint Task Force Southwest Asia (JTF-SWA) in the aftermath of the Khobar Towers bombing in Dhahran, Saudi Arabia. Effective route survey and counterintelligence ensured protection of JTF-SWA movements in Riyadh, to include the U.S. Air Force 4409th Operational Group aircrew relocation to and from the airfield. The deployment has been extended into FY97 in light of a continued terrorist threat.

**Kuwait: Operation Vigilant Sentinel** (August 1995-present). Navy and Marine Corps combat forces and active and reserve Military Sealift Command forces quickly responded to Iraqi threats against Jordan and Kuwait. Maritime Prepositioning Ship Squadron Two sortied from Diego Garcia with equipment for a 17,300-Marine combat force and remained on station to provide rapid response capability in this U.S. Central Command area of responsibility.

**Bahrain: Reinforcement of Naval Security in Bahrain** (July 1996-present). On 4 July 1996,

elements of the Fleet Antiterrorism Security Team (FAST) Company deployed in response to a request for security augmentation. The FAST Company reinforced Navy security forces of Administrative Support Unit Bahrain immediately following the attack on an Air Force barracks in Dhahran. Following the initial reinforcement, the Marine Corps developed a plan to provide extended security support. The timely disestablishment of Marine Corps Security Force Company on Diego Garcia provided a force structure for an interim company in Bahrain.



**Maritime Intercept Operations.** Throughout 1996, surface combatants and maritime patrol aircraft continued to execute maritime intercept operations in the Arabian Gulf in support of U.N. sanctions against Iraq. The U.S. Coast Guard cutter *Morgenthau* supported the 5th Fleet's mission in the Gulf applying the 1995 Department of Defense and Department of Transportation Memorandum of Agreement on "Use of Coast Guard Capabilities and Resources in Support of the National Military Strategy." By the end of 1996, surface combatants had conducted more than 23,000



at-sea intercepts, while simultaneously carrying out other forward-presence missions in the region.

## CARIBBEAN

**Haiti: U.N. Mission in Haiti** (April 1995-April 1996)/**U.S. Support Group Haiti** (April 1996-Present). Navy SeaBees participated in Exercise Fairwinds 96-2, helping to rebuild Haitian infrastructure that included schools, hospitals, water systems, and roads. Navy construction personnel, both active and reserve, built, repaired or upgraded these facilities. Marines from the Fleet Antiterrorism Security Team provided security to



all facets of the operation. Naval forces provided humanitarian civil assistance and supported the effort to institute democracy in Haiti. Currently, the II Marine Expeditionary Force has deployed three of the four subordinate elements to the U.S. Support Group Haiti, which include detachments from a medical battalion and the 2d Marine Air Wing, and companies from a tank and engineering support battalion.

**Guantanamo, Cuba: Operation Sea Signal** (August 1994-February 1996). Navy personnel based at Guantanamo Bay, Cuba, and Marines from the

II Marine Expeditionary Force continued Cuban and Haitian migrant handling, as well as security support to Joint Task Force 160. Since September 1994, the Navy-Marine Corps team housed and processed over 40,000 migrants awaiting repatriation or parole to the United States. Support to Joint Task Force 160 spanned 18 months.

**Counterdrug Operations.** Navy ships and aircraft, active and reserve, continued counterdrug detection and monitoring missions in the transit zone of the Caribbean and Eastern Pacific. In FY96, more than 32,000 counterdrug flight hours were flown by fixed- and rotary-wing aircraft; 2,000 ship steaming days were provided by Navy surface combatants and surveillance ships modified especially for counterdrug missions; and 170 days of covert support were conducted by submarines. In 1996, Marine Corps teams conducted 96 logistical and operational missions with domestic law enforcement agencies along the southwest border of the United States. Naval mobile training teams provide additional support and training to drug source countries in Central and South America. Navy and Marine Corps personnel also serve as tactical planners and analysts to enhance host nation law enforcement and military capabilities. Navy relocatable over-the-horizon radar sites in Virginia and Texas provide wide-area surveillance of the transit zone. A third site, planned for Puerto Rico, will enhance coverage further. Marines provided one of five ground mobile radar sites positioned to assist in



disrupting illegal use of airspace and interdicting alternate modes of transportation and drug-production capabilities. The Director of Naval Intelligence provides dedicated, maritime-focused counterdrug intelligence support and inter-agency coordination through multi-source fusion analysis of commercial shipping and non-commercial suspect vessels.

## **NORTHEAST ASIA**

**Guam: Operation Pacific Haven** (September 1996-present). The U.S. Pacific Command established a joint task force (JTF) on Guam to screen and process Kurdish refugees fleeing from northern Iraq, after Iraqi military operations began in early September. More than 350 Marines and 35 Navy personnel are supporting the operation — either with JTF Headquarters, security details, or medical units. To date, more than 2,100 refugees have been processed and relocated while another 4,500 remain on Guam awaiting relocation decisions.

**Taiwan Strait Flexible Deterrent Option** (March-April 1996). The value and flexibility of forward-deployed naval forces was demonstrated when the U.S. Seventh Fleet monitored Chinese military live-fire exercises off the coast of Taiwan. The forward-deployed *Independence* (CV 62) carrier battle group (CVBG), with embarked Carrier Air Wing Five, responded to rising tensions between China and Taiwan by taking station off the eastern coast of Taiwan. These forces provided a visible sign of U.S. commitment to stability in the region. The *Nimitz* (CVN 68) CVBG transited at high speed to arrive in the South China Sea within days, intensifying the signal of U.S. resolve. The successful tracking of missiles during the exercise demonstrated the inherent ability of the Aegis system as a foundation for sea-based theater missile defense.

**Korea.** Forward-based Navy and Marine expeditionary forces from Japan continue to provide a visible and unambiguous presence on the Korean

Peninsula and in surrounding waters during routine operations and bilateral training exercises with South Korean forces. One of the most important exercises is the Combined Forces Command sponsored, joint/combined command post exercise Ulchi Focus Lens. This exercise supports real-world operation plan concepts and evaluates specific aspects of command, control, and communication by providing essential joint and combined staff interaction from the lowest to highest staff echelons. Participating elements were globally sourced with personnel coming from Marine Force Reserve and Marine Force Atlantic joining the in-area staffs from Naval Forces Korea, Marine Forces Pacific, Marine Forces Korea, and 7th Fleet. This total force exercise provided a unique opportunity for both Commander, Marine Forces Korea, and Commander, Naval Forces Korea, to operate as component headquarters and to demonstrate the importance they play in the overall defense of Korea.

## **MILITARY SUPPORT TO CIVIL AUTHORITIES**

**TWA Flight 800 Salvage Operations** (July-November 1996). The Navy supported operations closer to home with salvage operations for TWA



Flight 800. Navy Supervisor of Salvage assets and explosive ordnance disposal teams were among the first to respond to this tragedy. Their efforts included coordination of both the civilian and military crash site mapping efforts. The first Navy salvage ship on scene, *Grasp* (ARS 51), responded only 50 hours after returning from a five-month Mediterranean deployment. As the scale of the operation grew, the Navy deployed *Grapple* (ARS 53) to provide additional support. A total of 149 active and reserve Navy divers participated in the recovery of victims, location and retrieval of flight data and voice recorders, and recovery of more than 90% of the wreckage. Amphibious ships *Oak Hill* (LSD 51) and *Trenton* (LPD 14) served as afloat command post and wreckage-retrieval platforms.

**Northwest Forest Fires** (September 1996). During September, more than 500 Marines from I Marine Expeditionary Force deployed to Oregon and joined 5th Army efforts in fighting forest fires in the Umatilla National Forest. The Marines provided a command element, 25 firefighting teams, and a medical evacuation detachment for two weeks, supporting the National Interagency Firefighting Center's effort to bring forest fires under control throughout the West.

**Additional Domestic Support** (July-November 1996). Our forces responded to numerous requests for assistance to civil authorities in support of domestic operations. During July and August, the Marine Corps Chemical/Biological Incident Response Force (CBIRF) and military police explosive-detection dog teams supported security efforts for the 1996 Summer Olympic Games in Atlanta, Georgia, and just recently, CBIRF provided support during the presidential inaugural. In addition, from August through November, the explosive-detection dog teams provided support to the U.S. Secret Service at the Democratic and Republican conventions, and during campaign stops by candidates throughout the United States.



## MAJOR JOINT AND COMBINED EXERCISES

**Russia.** Exercise Cooperation From The Sea 96, conducted in Vladivostok, included both amphibious and at-sea training for U.S. and Russian naval forces. In addition, elements of the *America* (CV 66) carrier battle group and *Wasp* (LHD 1) amphibious ready group conducted bilateral operations with a Russian carrier battle group in the Mediterranean. These interactions continued to build on the positive foundation laid in 1995, and set the stage for further cooperation between our naval forces. U.S. naval forces also participated in the Russian Navy's 300th anniversary celebrations in St. Petersburg and Kaliningrad.

**Central and Eastern Europe.** The Partnership For Peace (PfP) program continued to be the centerpiece of NATO's strategic relationship with Central and Eastern Europe. Naval forces conducted four major PfP exercises with Eastern European nations. These operations, part of our



bilateral military-to-military contacts program, included basic seamanship exercises and familiarization visits with the naval forces of the region. Units from the Sixth Fleet, including assigned Marine expeditionary forces, conducted fleet and amphibious training exercises with forces from Romania, Ukraine, Bulgaria, Albania, and Georgia. The training exercise BALTOPS 96 was conducted in the Baltic Sea and involved a record 43 ships from 12 countries, including the U.S. Coast Guard cutter *Gallatin* (WHEC 721).



**Cooperative Osprey 96.** This 19-nation exercise was conducted at Camp Lejeune, North Carolina, with the Commanding General, Marine Forces Atlantic, as the exercise director. Part of the PfP program, this exercise focused on military operations other than war. Exercise objectives included developing procedures to form and train coalition forces for peacetime operations in the littorals. The first visit by Ukrainian Navy ships to the United States in September was particularly significant. These vessels conducted amphibious training with Atlantic Fleet units at Norfolk, Virginia.

**Black Sea Operations.** Marines conducting training with forces from Romania, Ukraine, and Bulgaria made a major contribution in building Black Sea alliances and furthering PfP efforts in the region. Forward-deployed, self-sustaining amphibious task forces can exploit excellent opportunities for initial bilateral training with the armed forces of emerging democracies.



**UNITAS 96.** The 37th annual UNITAS deployment is a primary means of supporting regional stability in the Western Hemisphere. Active and reserve surface combatants, P-3C aircraft, Marines embarked in an amphibious combatant, and a submarine joined to conduct multinational exercises with South American nations, while circumnavigating the continent, during a five-month period. This year, Canada, Germany, the United Kingdom, South Africa, and the Netherlands also participated during certain phases of the deployment. Our naval forces operate with host-nation air, sea, and land forces during each Latin American stop. These exercises often provide the only opportunity for Latin American forces to train with U.S. and other allied forces. For example, UNITAS Marines participated in four amphibious exercises and two riverine exercises in the nine-nation, 27-city deployment. The riverine exercises provided an invaluable foundation for the expanded riverine training occurring with South American allies through the recently established Riverine Center for Excellence. In addition, this year embarked explosive ordnance detachments experienced real-world training while searching for voice and data flight recorders from AeroPeru Flight 603, after the aircraft crashed off the coast of Lima, Peru, in October.

**CARAT 96.** Regional stability in Southeast Asia is supported by the Pacific Fleet's Cooperation Afloat Readiness and Training (CARAT) program, patterned after the UNITAS deployment. Active and reserve surface combatants,



maritime patrol aircraft, a special purpose Marine air-ground task force embarked in amphibious combatants, medical detachments, and a U.S. Coast Guard training detachment exercise with six countries in the South China Sea region for two months each year. In 1996, Brunei, the Philippines, Indonesia, Malaysia, Thailand and Singapore participated. During each stop, our naval forces exercised with the host nation's air, sea, and land forces. The objectives for each phase were to promote regional maritime interoperability, increase readiness, enhance military-to-military relations, and ensure stability of Southeast Asian sea lanes of communication.



**Rim-of-the-Pacific 1996 (RIMPAC 96)** is a biennial exercise designed to enhance interoperability and proficiency of multinational and bilateral forces operating in response to short-notice littoral missions. More than 28 ships and 1200 Marines -- including the *Independence* (CV 62) and *Kitty Hawk* (CV 63) carrier battle groups, *Essex* (LHD 2) amphibious ready group with the 11th MEU(SOC) embarked, and U.S. Coast Guard vessels — participated in RIMPAC 96. An additional 29 ships from Australia, Canada, Chile, Korea, and Japan were involved in the exercise. In addition to embarked carrier air wings, U.S. Air Force and Hawaiian Air National Guard and maritime patrol aircraft from the United States, Canada, and Japan also participated.

**West African Training Cruise (WATC 96)** is an annual exercise conducted to provide interaction between U.S. naval forces and host-nation counterparts, enhance military training, and maintain familiarity with the West African littoral environment. U.S.

Marine Corps and Coast Guard personnel, embarked in amphibious ship *Tortuga* (LSD 46), conducted training in Benin, Cape Verde, Cote D'Ivoire, Guinea-Bissau, Mauritania, Senegal, and Togo.

**Sorbet Royal** was a NATO sponsored submarine escape-and-rescue exercise, involving units from seven countries and observers from six other countries. Conducted in the Vestfjord area of Norway, the exercise successfully demonstrated an ability to coordinate a multinational rescue of the crew of a disabled submarine and marked real progress in standardization of procedures and equipment.

## FREEDOM OF NAVIGATION

An essential element of U.S. foreign policy is ensuring free and safe transit through ocean areas and international air space as a matter of legal right — not contingent upon the approval of adjacent countries. Naval forces are especially useful in demonstrating transit rights under international law. In 1996, Navy ships and aircraft conducted numerous freedom-of-navigation operations in or through areas where coastal nations have maintained excessive maritime claims in conflict with existing international law. The President, Secretary of Defense, and Chairman of the Joint Chiefs of Staff all have emphasized the importance of these operations as an active component of U.S. policy.



## IV. PEOPLE

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The most vital resource of the Navy-Marine Corps team is our people: active, reserve, and civilian. The intense demands of a modern, high-tech naval force operating in a complex foreign littoral environment require highly motivated, well-trained, and responsibly-led Sailors and Marines. The daily sacrifices of our people, who are deployed around the globe to ensure the security of the United States, deserve the best possible career and family support.

### The Current Force

#### Total Integration - The Active, Reserve, and Civilian Team

During 1996, the Navy's endstrength was 416,735 active and 97,956 reserve personnel. Further reductions are planned to meet our FY99 programmed endstrength. The Marine Corps continues to maintain a force mixture of 174,000 active-duty Marines and 42,000 reservists.



Department of the Navy civilian personnel endstrength approached 224,768, the lowest level since before World War II, and is targeted for 210,967 by FY99. This reflects the results of base closures, force-structure reductions, and management efficiency. To meet the demands of our worldwide commitments successfully, an unprecedented level of integration among our active, reserve and civilian components is in order.

The role of the Naval and Marine Corps Reserve, in fulfilling the Department of the Navy's mission, has increased through their contributory support to the active component. The extent of this varies between warfare communities, ranging from routine operations and regional commander support, to such contingency operations as the evacuation of civilians from Liberia.



Capitalizing on reserve capabilities and our ability to employ reserve components seamlessly, we expanded active and reserve force integrated operations. Reserves regularly supported missile exercises, naval coastal warfare exercises, counterdrug operations, and search-and-rescue services for fleet carrier qualifications. In 1996, Marine Corps reservists participated in numerous exercises, such as BATTLE GRIFFIN, a USMC/Norwegian combined exercise in which 85% of U.S. participants (including the commanding general) were reservists. In addition, Marine Corps reservists from the 6th Engineer Support Battalion participated in Arctic Engineer, the military engineer civic action exercise in Noorvik, Alaska. This exercise provided valuable training for over 100 Marines in the movement and widening of an existing runway, protecting the airfield from encroachment of a nearby river. The Naval Reserve also played a significant role in exercises, including: BALTOPS 96, in which the first-ever

reserve ship visit to a former Soviet port was conducted; UNIFIED SPIRIT 96, the largest NATO exercise of its type in more than five years; and UNITAS 96. This integration of reserve personnel and equipment into missions normally assigned to the active component not only improves reserve readiness but also keeps the active component personnel deployment rates at a reasonable level.



The Coast Guard also is a valuable participant in naval services integration and brings unique capabilities and expertise to the joint forces team. In addition to its complementary surge capability, the Coast Guard plays a distinctive role in executing the regional commanders' peacetime engagement strategies. Smaller foreign nations view the Coast Guard as a model for their maritime forces, which share similar missions and challenges. The Navy and Coast Guard made significant strides toward the increased integration of forces in support of national security and military strategies.

## **Creating the Force for the Future**

### **Recruiting**

The Department's readiness depends heavily on the ability to attract and retain high-quality people. Although quite challenging, 1996 proved to be a highly successful year for Navy and Marine Corps recruiting. Through targeted marketing, Navy and Marine Corps recruiters achieved 100% of the enlisted accession goal. The recruiting strategy attracted qualified individuals for particular skill areas needed most in the Fleet and Fleet Marine

Forces, while making significant progress in recruiting minorities. Minority accessions this year will be the most representative in the Department's history. Although low national unemployment and other changes in demographics made for a difficult recruiting environment, the academic quality of enlisted recruits remained high: 95% possessed high school diplomas, and more than 66% scored in the upper half of the Armed Forces Qualification Test. The addition of more recruiters to the force and a congressionally sponsored increase in recruiter special duty assignment pay will help ensure a solid recruiting effort. Federally legislated educational benefits also have a direct impact on recruiting. The 1995 New Recruit Survey listed the Montgomery G.I. Bill as the number one reason for enlisting. The Navy and Marine Corps College Funds are used as an enlistment incentive for specialized skill areas.

The year also was successful for officer recruiting, with nearly all programs attaining 100% of goal. Medical recruiting accessed 36% more physicians and dentists than just a year ago. Similar increases were attained for pilots and naval flight officers.

To continue the positive momentum of the Navy-Marine Corps recruiting team, the services implemented several initiatives to improve the process. Adopting proven methods from the commercial sector, the Navy successfully tested the concept of using professional telemarketers, resulting in more than 34,000 quality leads for recruiters. In addition, a 60-second "infomercial" was developed for selected cable networks. This promising program generated leads comparable to direct-mail efforts, and will be further evaluated during 1997. Traditional commercials emphasizing core values are well received and continue to be a major factor in reaching the general populace. Based on new recruit-survey results, our FY96 advertising program has worked. The Department of Defense Youth Attitude Tracking Survey registered the first positive movement since 1991 in the desire of male youth to join the Navy.



For the Marine Corps, the propensity to enlist has remained constant. This is largely attributable to a modest but effective advertising program. An increase in the direct-mail budget realized a 25% rise in contacts. The Internet also proved to be a



useful, low-cost source of leads and contacts. Continued improvements include an expanded “enhanced area canvassing” effort through “event” partnerships with youth-oriented programs. This program, along with other cost-effective methods, is connecting our recruiters directly with the youth market.

As an investment in future civilian recruitment needs, we have established special residential and scholars programs to expose outstanding high school and college students to the Department’s technical missions and functions. These programs have enhanced our ability to recruit a well-qualified and diverse civilian work force, by bringing Navy and Marine Corps activities together with tomorrow’s work force.

### **Retaining a Quality Force**

Maintaining a quality force is a key element of overall readiness, and retention of officer and

enlisted personnel is a critical component. We have many tools to accomplish this. Special pays and bonuses are targeted to those skills most costly to replace. The Selected Reenlistment



Bonus (SRB) and Special Duty Assignment Pay (SDAP) are two of these. The SRB program is the Navy and Marine Corps’ most cost-effective tool for increasing or holding steady the retention of high-quality people and highly technical skills. It provides an ability to respond quickly and precisely to changes in either requirements or retention.

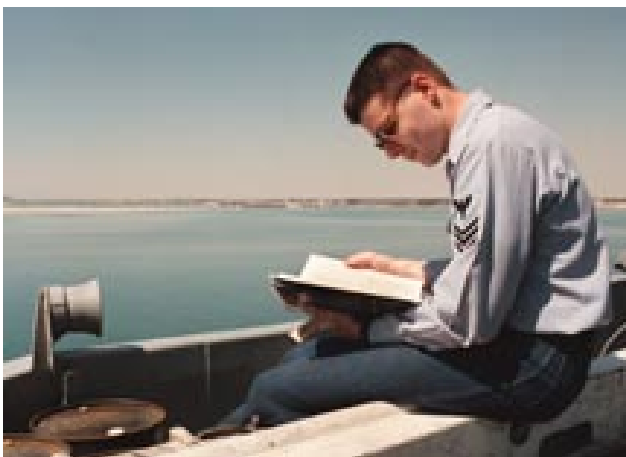
Similar to bonuses, special pay provide compensation for personnel serving in specific billets, locations, or types of arduous duty. SDAP is used to attract high-quality volunteers into the most demanding and responsible billets. This initiative permits significant savings in the areas of permanent-change-of-station costs and retraining of new personnel for those billets.

Bonuses and special pay also are essential tools for ensuring that our future inventory of officers meets our diverse and highly technical requirements. Examples of these include Nuclear Officer Incentive Pay, Aviation Continuation Pay, and Medical Officer Incentive Special Pay. Bonuses and special pays help us remain competitive for those skills that can be used directly in civilian industry. As a case in point — problems were encountered in Navy and



Marine Corps aviator retention, primarily because of a major increase in civilian airline hirings. The Marine Corps has expanded its Aviation Retention Bonus program in FY97 to reverse this trend. The Navy's Aviation Continuation Pay program also has been expanded to reflect the increased competition from the civilian sector and increases to the programmed force structure. In addition, legislation has been included as part of the Department of Defense FY98 budget submission which maintains the bonus program structure and increases the maximum allowed award level for Nuclear Officer Incentive Pay. This increase will help counter falling retention, currently at a ten year low, in order to man adequately the nuclear-powered fleet. Adequate compensation and consequent improved retention in mission-critical skills will allow us to maintain peak readiness and morale, which is critical in today's all-volunteer force.

The Navy has initiated a new Homebasing Program designed to reduce the turbulence and costs associated with PCS moves. This enlisted program is evolving in response to changing Navy demographics. Since 1980, the number of Navy personnel with families has increased from 42% to the current 60%. The Homebasing Program's goals are to improve quality of life and retention.



Voluntary education programs also make a significant contribution to recruiting, retention, and readiness. For those already in the service, the

vast majority of tuition assistance users are our prime retention candidates in pay grades E-4 to E-6. We have made concerted efforts toward standardizing the tuition assistance payment policy;



expanding distance learning opportunities through the Program for Afloat College Education and the Marine Corps Satellite Education Network; increasing access to basic academic skills learning; and establishing an official educational transcript program, which will ensure that military personnel receive full academic credit for their educational experiences.

### **Training and Educating for the Future**

We have the best trained Navy and Marine forces in the world, and several innovative training concepts are under development.

- **Training Challenges**

Providing affordable, quality training is a major challenge. Course consolidation, outsourcing, and interservice training all are being used to train in a more cost-effective manner. Specific evaluations of training schedules and career timing have resulted in better integration of training and operational commitments. In addition, we have made significant shifts in training to more appropriate career points.

Aggressive use of simulation, virtual reality, war games, models, and distance learning also are providing quality solutions to some of our training challenges. Our training methods are improving, and we continue to look for better ways.

- **Innovative Solutions**

- \* **Accession Training:** Technological advances, such as electronic classrooms and electronic training manuals, have improved training effectiveness and curriculum design. Training reviews have led to the adoption of core and strand training courses, selected computer-based instruction, and general reductions in the time required to train individuals.

- \* **Recruit Training:** The transformation process is quite challenging, and requires an emphasis on instilling the ideals and core values of our naval services in order to build an effective fighting force. The Marine Corps has begun a four-phased program to build Marines with the mental, physical, and moral courage that will be required to succeed on the chaotic battlefields of the 21st century. Marine recruiters begin the first phase by selecting only the most qualified young men and women to become Marines and introducing them, during their time in the delayed entry pool, to the ethos of the institution and to our core values. Drill instructors continue this process with the second phase during recruit training. The addition of one week focuses on core values training and allows for inclusion of the “Crucible” -- a 54-hour mental and physical challenge exacerbated by sleep and food deprivation, designed to teach recruits steeped in self-discipline the value of selflessness. Marines learn in the “Crucible” that they must rely on each other to succeed, much the same as in combat. Marines then attend Marine Combat Training -- training designed to give each Marine a common, solid foundation in basic

warrior skills. The third phase, cohesion, involves teams of Marines from recruit training remaining together upon graduation for their first tour of duty. Through the team, Marines can draw strength from one another and our core values when confronted with challenges inherent in being a Marine. The fourth and final phase, sustainment, continues through the duration of a Marine’s enlistment or career and is the



responsibility of every NCO, SNCO, and officer in the Corps. This phase is the continuation of the educational process, ultimately ensuring that Marines win in combat and that the Marine Corps returns to the nation a better citizen for having been a Marine.

The Navy also has adopted the concept of mentorship and individual stewardship to promote further the internalization of core values. This concept begins on day one of the new Sailor’s journey at Recruit Training Command. On a new Sailor’s first day, the recruit is met at the airport by Recruit Division Commanders and escorted to a bus within the first 45 minutes. While en route to the Great Lakes Training facility, the recruits view indoctrination videos and receive a “Blue Card” -- designed to reassure new Sailors of the network of support around them -- and a “Recruit Bill of Rights Card” -- which outlines the Navy’s policy regarding discrimination and sexual harassment. These improvements are indicative of the Navy’s efforts to create a

climate of excellence, founded on an initial positive and reassuring experience. Our efforts send men and women to the fleet prepared to participate, contribute, learn, help, and grow. In addition, these initiatives reduce attrition and increase the foundation for future success in the fleet. The Navy's basic military continuum builds upon the solid foundation established during boot camp.

- \* **Innovative Readiness Training** is a Department of Defense civilian/military program that provides combat support and combat service support units with the opportunity for hands-on, real-world training in their occupational fields, while providing support to under-served civilian communities. The Marine Corps Reserve sponsored OPERATION ARCTIC CARE 96, in which members of the 4th Force Service Support Group (FSSG) Medical and Dental Battalions provided medical services to remote Alaskan villages above the Arctic Circle. OPERATION ARCTIC ENGINEER 96 used the same FSSG and 4th Marine Aircraft Wing personnel to repair and upgrade a rural runway in Noorvik, Alaska.

- **Leadership Training and Professional Education**

- \* **Leadership Continuum:** Strong leadership is the cornerstone of our Navy and the key to future success. Strong leadership ensures mission readiness and provides our members and their families with a sense of purpose and commitment to our profession. Continually improving leadership throughout the chain of command is essential.

The Navy established the Leadership Continuum as a vehicle for imparting leadership qualities for specific positions in the chain of command. Developing exceptional leaders requires role models, experience, and commitment to excellence. The Leadership Continuum molds these qualities into a program of recurring training and

provides a concentrated, hard-hitting series of two-week courses under a single training program. Enlisted personnel will attend the continuum after selection to E-5, E-6, Chief Petty Officer, and Command Master Chief/Chief of the Boat. Officers will receive instruction during training en route to their first duty assignment, at the 7-9 year point, at the 11-14 year point, and prior to their first command tour at approximately the 15-21 year point. The courses are solid, relevant, and of superior quality.

- \* **Marine Corps Research Center:** The Marine Corps University is expanding educational opportunities through improved nonresident professional military education courses, distance learning resources, video-teleconferencing, and "virtual" seminar and conference groups. The recently opened Marine Corps Research Center (MCRC), as part of the Marine Corps University, is specifically designed to meet the growing information needs of our global force. The MCRC provides a comprehensive facility for the study of expeditionary and amphibious warfighting, linking scholarly research and schools of professional military education with lessons learned from the field. It serves the information needs of the operating forces around the world, as well as those of the professional military education schools.

- \* **Civilian Leadership Development Program:** The Department of the Navy Civilian Leadership Development (CLD) Program was established to deal with the challenges of restructuring, downsizing, technological changes, and new roles and missions. The program also ensures that minorities and women are provided improved opportunities to acquire skills and abilities that enhance their competitiveness for higher level positions. To meet these challenges, we are developing a framework of technical and leadership training for civilian employees. The framework identifies certain competencies of good leaders that commands and activities can use as a basis for establishing formal



leadership development programs. A Civilian Leadership Board assists in developing the CLD framework and overseeing its implementation by commands and activities.

## Climate of Excellence

- **Core Values: What We Give and What We Get**

The Department of the Navy is committed to the moral foundations of our Services. The past year involved a Department-wide effort to rededicate ourselves to our core values of honor, courage, and commitment. To this end, a core values charter was established this year and distributed throughout the Department of the Navy. In an effort to ensure that all who enter the naval services can move to a higher plane, the charter highlights the bedrock principles of the Navy and Marine Corps: uncompromising integrity; honesty and truthfulness; the moral courage to take responsibility for our actions; meeting the demands of our profession and mission; and achieving the well-being of our people, without regard to race, religion, or gender. We strive to develop the highest degrees of moral character and professional excellence in our people. The principles of honor, courage, and commitment are being incorporated systematically not only in training but also in the actions and decisions in day-to-day operations. The understanding of these core values begins with recruiting. In the Navy, these core values are the basis of the 1997 national advertising campaign; while the Marine Corps' emphasis centers on the transformation process. Both of these approaches are intended to ensure that young people who join the Navy and Marine Corps understand our expectations and are willing to serve at this level of excellence.

By instilling these values in our people, it enriches not only our Navy-Marine Corps team, but also our society - whether an individual stays in the service or returns to civilian life.

- **Equal Opportunity**

Through leadership, training, education, and mentoring, the Department of the Navy offers all hands the opportunity to succeed. To that end, it provides an environment that recog-



nizes the dignity and unique qualities of all. The Navy equal-opportunity vision statement is a foundation of this environment, supplemented by our increased emphasis on core values. Leadership is the key in this area, and through mentoring and personal attention at all levels, all will have the opportunity to demonstrate their skills and ability to succeed. Several initiatives provide the policy guidance necessary to assist leaders in identifying and



eliminating discrimination, as well as in removing artificial barriers to advancement. These include the Navy and Marine Corps'



Equal Opportunity Manuals, various equal opportunity conferences, and a stern reminder by the Secretary of the Navy that involvement in extremist activities and membership in supremacist or extremist groups by naval personnel will not be tolerated.

The Department of the Navy has made great strides in identifying and eliminating sexual misconduct. Active efforts throughout the Department concentrate on oversight, leadership, policies, and training, while at the same time providing assistance services and formal assessments of our progress. The Navy's Leadership Continuum and the Marine Corps Professional Military Education courses provide fleet relevant leadership education, with strong core values emphasis. We continue to support a top-level standing committee on military and civilian women. We have added more fleet equal-opportunity billets, and have provided command-managed equal opportunity officers or equal opportunity advisors to all commands. Toll-free advice lines, as well as victim/witness assistance programs, have been established at installations, offering full access to counseling, advocacy, and other community support services. We are committed to the elimination of discrimination and sexual harassment from our ranks, and as statistics and prevention/intervention strategies are reviewed over time, we will continue developing and refining our policies and initiatives.

The Department of the Navy also is continuing its support of the "Enhanced Opportunities For Minorities Initiative (12/12/5)" to achieve cultural diversity within the Navy and Marine Corps. The goal is to reach an accession level of 12% African American, 12% Hispanic, and 5% other minorities by the year 2005. This would create an officer corps that is reflective of the racial composition of American society and our enlisted force by the year 2025. Although the goals of this initiative will take a number of years to achieve, the impact will have a lasting and

positive effect on the future of our Navy, Marine Corps, and our country.

- **Quality of Life**

The best quality of life we can provide is to bring our Sailors and Marines home alive. To do this, we must ensure our naval forces are well trained, equipped, supported, and led. An important component of this effort is in taking care of our personnel and their families. Key elements of quality of life include an adequate package of compensation and benefits as well as a positive environment that provides service members the tools to reach their full potential. To this end, the Department of the Navy has established minimum quality-of-life standards -- and aggressive goals to meet these standards in cost-effective and coordinated ways.



Quality bachelor and family housing continue to be a high priority. Recently, a private sector-based housing strategy was developed to construct and revitalize housing for military personnel. This public-private venture, the Military Housing Privatization Initiative, was authorized by Congress in FY96. It has been expanded to include bachelor housing in 1997. Revitalization and construction of bachelor and family housing hinges on our ability to use these authorizations. A combination of these approaches will permit accelerated achievement of the Department's goals, without increasing costs.

Quality child care at affordable prices also is critical. Several options to meet the growing child care demand already are under way or currently being developed. These initiatives include contracting for spaces in qualified off-base civilian centers, expanding family child care to incorporate off-base residences, enhancing our resource and referral program, school-age care partnerships, and obtaining wraparound contracts with local providers.



We also remain committed to providing a full range of community and family support services for our service and family members. These services emphasize basic skills-for-living adult education and provide timely, accurate community information and referral. They also help prepare family members for the rigors of required relocations, major life transitions, employment opportunities, deployments, and mobilizations. Examples of these programs are the Marine Corps' formal Key Volunteer Network program and the Navy's Ombudsman program which are designed to assist spouses while the service member is deployed. In addition, the Marine Corps is implementing "LINKS" (Lifestyle, Insights, Networking, Knowledge, and Skills), a program that assists new families in adapting to the Marine Corps. Additional funding is programmed in

FY98 for counseling services, to ensure the highest-quality professional assistance is available.

The needs of our single members also are a key concern. Single Sailors and Marines, representing the majority of our personnel afloat and overseas, typically live in the most modest accommodations. They have a greater need for programs which enhance their recreational opportunities and offer constructive activities for their off duty hours. Recent survey results indicate single Sailors and Marines perceive their needs have not been met at the same level as married personnel. The Navy and Marine Corps established the Single Sailor and Marine programs with long-term funding to address specific needs. Initiatives include safe and secure storage for personal belongings and vehicles during deployment, and pierside laundry facilities for those who live aboard ship or are deployed overseas. In addition, The Navy has established a center at the Great Lakes Training facility to meet student recreational needs and emphasizes constructive leisure activities and opportunities available in Navy recreation programs during the recruit training curriculum.

The Department of the Navy has made a significant commitment to funding morale, welfare, and recreation (MWR) programs. This provides a stable, long-range recapitalization plan to ensure adequate MWR facilities. Computerized libraries, learning resource centers, and state-of-the-art fitness equipment and recreational gear are all being funded to enhance morale.

- **Community Action and Healthy People**

The Department is actively promoting numerous programs that create the right environment and provide the necessary guidance for our people to pursue healthy life styles. Our zero tolerance drug policy has reduced significantly drug use, with a decrease in positive drug-test results from 14% in 1981 to 1% in 1996. Over the past year, we established a standing committee on alcohol use deglamorization, to highlight the Department's

policies and attempt to change existing attitudes toward alcohol. The Navy's Right Spirit campaign and the Marine Corps' Semper Paratus program are additional ways of educating our people and instilling personal responsibility for themselves and each other.

We are not limiting these programs to our naval family. Programs such as the Drug Education for Youth, Seaborn Conservation Corps, Young Marines, and our media campaign seek to influence local youths by emphasizing core values and using role models from the Department.

- **Meeting our Spiritual Needs**

More than 800 military chaplains in the Navy continue to mold values by facilitating the free exercise of religious faith. In addition to round-the-clock pastoral care and counsel, they provide spiritual-formation programs encompassing marriage preparation and enrichment and personal growth events, such as the Chaplains Religious Education Development Organization. Among other traditional and innovative programs, chaplains continue to foster initiatives for individuals and families with chaplain-led programs and benevolent service projects in the local communities.

As key players during crisis, chaplains provide intervention and support during times of personal loss, bereavement, and transition. In cooperation with the Army Chaplain Corps, Navy chaplains fill quotas for attendance at the prestigious Menninger Clinic for a one-week suicide prevention course.

Enhancing the quality of life means ministry at sea and ashore, with chaplains interacting with family service centers, the Navy and Marine Corps Relief Society, the American Red Cross, and others to ensure that military people have the best support possible.

- **Quality of Civilian Work Life**

In 1994, President Clinton directed the leaders of executive departments and agencies to estab-



lish programs to encourage and support expansion of flexible, family-friendly work arrangements, including: job sharing, career part-time employment; alternative work schedules; telecommuting; and satellite work locations. We have established a multi-tiered work life program to attain the objectives of the President's directive. Work life resource and information centers are being established at several locations throughout the Navy to make available material and information in such areas as career and personal planning, health and wellness, financial planning, and continuous learning. The Department of the Navy is participating in a federal telecommuting pilot program in the Washington metropolitan area to allow work to be performed at home by selected personnel. The President's Management Council has asked the Department to expand the telecommuting pilot to include civilians outside this area.

- **Regionalization of the Civilian Human Resources Management System**

Program Decision Memorandum 61 directed Department of Defense components to regionalize base level civilian personnel functions and to reduce manpower to a 1:100 ratio between personnel specialists and the serviced population. Achievement of this significant improvement in servicing ratio, coupled with the planned drawdown of the civilian work force, requires reducing (by roughly 45%) the number of employees



providing base level civilian personnel services by the year 2001. A major challenge is to continue providing quality civilian personnel services to our managers and employees throughout this transition. After extensive analysis of facts and alternatives, and with continuing participation by diverse groups of stakeholders, the Department will stand up three human resource service centers in FY97 and four in FY98. We believe that regionalization will give us the best return on our dollars, by eliminating duplication and standardizing human-resource services.

- **Medical**

The Department is committed to providing the highest-quality health care to active-duty and retired service members and their families. Recent innovations for keeping people healthy and on the job, providing medical services as close as possible to the work site, and using technology to move informa-



tion instead of patients have provided a solid foundation for future improvements.

Navy medicine's strategic plan, *Journey to Excellence: Meeting the Challenges of the Future*, will help guide us in meeting our primary mission of readiness. This strategic plan describes the means for reengineering the approach to medicine and health care services, particularly through the development of measurable data. Navy medicine is developing

performance indicators that are specific, measurable, accountable, realistic, and time-phased. The annual planning process aligns us with the Government Performance and Results Act; supports TriCare, the Department of Defense managed-care program; and makes strategic planning a part of our culture.

Navy medicine has had great success this year with telemedicine technology, greatly reducing the need to transport patients. By using this new technology, we are realizing benefits with enhanced medical care, specialty consultation to



remote areas, and time and cost savings. This technology also is enhancing our ability to provide quality health care forward with operational forces, ships at sea, and remote medical treatment facilities. This change in the way we do business is helping to keep our people on the job by taking health care to the deckplates. The successes on board *George Washington* (CVN 73), our operational testbed for telemedicine technology, have been incorporated into other areas of operational medical support and treatment facilities in the United States and overseas.

Another example of our reengineering efforts is a pilot project to enhance medical support for ships at sea through active preventive health care and health promotion. This past year, we deployed a physical therapist and a dietitian with *Enterprise* (CVN 65), providing significant health maintenance benefits to the crew.



Navy medicine is on board with the Department of Defense's TriCare implementation and is performing its responsibilities as the lead service in San Diego, California, and Portsmouth, Virginia. TriCare is allowing us to give our beneficiaries what they want: choice, guaranteed access, and quality care at low, out-of-pocket expense.

Another important program is the Medicare subvention demonstration project to allow the

Military Health Services System to be reimbursed for medical care given to retirees over age 65. The Department of Defense is considering additional alternatives that will demonstrate our concern for and commitment to military retirees who are Medicare-eligible. Meanwhile, Medicare-eligible patients continue to be seen on a space-available basis at military hospitals and clinics.

## V. READINESS

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Navy and Marine Corps readiness is high today, but concerns about the future persist. Readiness is not limited to our ability to meet today's commitments; our readiness must be able to answer both near-term and long-term needs as well. This requires attaining a careful balance between funding of current operations, modernization of existing assets, and procurement of new platforms to recapitalize future force levels — a balance that is increasingly more difficult to reach. Application of balanced solutions to the sometimes divergent objectives of maintaining current capabilities, operations, and recapitalizing for the future is a significant challenge in view of projected fiscal constraints.

### **Today's Readiness**

Indicative of today's readiness is the continued success of the Navy-Marine Corps team during this past year. Beginning with forward-presence

missions committed to real-world operations and culminating with joint and combined exercises, naval forces were successful because our readiness remained high. This level of readiness was attained by providing the best training and equipment available, and by preserving these assets with outstanding leadership and prudent safety programs. Our tactical training strategy ensures battle group, amphibious ready group, and Marine expeditionary unit readiness through a comprehensive, realistic interdeployment training cycle.

Because we are forward deployed, incremental costs for contingency operations can be relatively small. However, unfunded contingencies that require deployment of additional ships, aircraft squadrons, and Marines cause reductions in other areas of the Navy and Marine Corps Active and Reserve Operations and Maintenance (O&M) accounts. Diverting programmed O&M funds

directly impacts the balance of current readiness across the force, delaying vital equipment repairs and disrupting quality training.

- **Realistic Operational Training**

Realistic operational training while deployed or preparing for deployment has remained a top priority for the Navy and Marine Corps. Funding constraints have made it imperative that we reap the top benefit from our training budget. Continued advances in simulators and unit-level training systems provide highly



effective training and reduce the time required to train on actual equipment. Almost all systems purchased today have cost-effective computer-based training systems that enhance operator skills. The Battle Force Tactical Trainer, a shore-based broadcast system, now can simulate combat scenarios with real-time updates, allowing watchstanders the opportunity to run integrated battle problems inport or underway. Simulators are providing valuable and realistic training in dangerous scenarios without risk to personnel, and at a significant monetary savings. For example, the Marine Corps Air-Ground Combat Center at Twenty-Nine Palms, California, is on the leading edge of advanced warfighting experiments. Their modeling, simulation, and range instrumentation capture information and permit more accurate and precise evaluation of actions and decisions made under the stress of simulated combat. Sea-based instrumented



ranges such as the Naval Air Warfare Center Sea Range and the Atlantic Undersea Test and Evaluation Center, also provide critical training data. These technological advances are providing major improvements in our training — and ultimately in our readiness.

A critical component of readiness includes the hundreds of unilateral, joint, and combined exercises in which we participate each year. In 1996, more than 260 joint and combined exercises had naval participation. This training not only provided valuable service-specific training but also increased interoperability readiness with the Army, Air Force, and foreign countries.

Protecting and, when possible, expanding the areas where naval forces can conduct training is key to readiness. Initiatives, such as obtaining permission to use foreign training areas, allow us to maintain our combat edge while deployed. Superb examples of important overseas training areas include Northern Australia and the missile range off the coast of Crete in the Mediterranean Sea.

The Department is committed to maintaining a proper balance between environmental

protection and operational readiness and safety. Today, environmental concerns have limited training and testing at numerous ranges and bases. The key to successful management of our environmental responsibilities is the integration of environmental planning into the earliest stages of decisionmaking, especially in the operations and acquisition arenas. The Department is working closely with the environmental agencies to ensure that a prudent balance is maintained between critical environmental issues and vital readiness for our naval forces. Several initiatives are being pursued to solve shipboard-discharge challenges and base and installation hazardous waste disposal/cleanup. Also, we are seeking aggressively common ground to address — and, where necessary, eliminate — the impact of our training and testing on endangered species and marine mammals, which ultimately will lessen the likelihood of environmental issues affecting both Navy and Marine Corps missions.



- **Equipment Readiness**

Our readiness today depends on providing the tools our forces need to operate. This year our equipment readiness has been consistently at or above goal, primarily attributable to the outstanding maintenance efforts of our Sailors and Marines. However, there are areas of potential concern. Due to the age of a significant portion of Marine Corps equipment, the average

maintenance requirements are growing. Close scrutiny of the material condition of our equipment is required to guarantee future readiness. We must ensure our equipment remains well maintained amid a declining budget without further decreasing our modernization accounts.



- **Preserving Our Assets**

An inherent responsibility of the Department of the Navy is to conserve resources and protect our personnel from hazards. The preservation of our assets is the cornerstone of our safety and occupational health program and must be successful, or readiness will suffer.

Operational safety and survivability initiatives, in conjunction with the Naval Postgraduate School, the Naval Safety Center, and Fleet and Fleet Marine Force units, are beginning to reduce characteristic losses of the past. Losses



attributable to human causal factors, which generally run in the range of 75-80% of total losses, are under special scrutiny. A focused Human Factors Quality Management Board has begun to analyze underlying cultural characteristics that provide information and guidelines necessary to reduce losses further. In all phases of naval operations, new windows of human performance information and opportunity are being explored. Initial goals of reducing human factors-related losses by 50% in five years, and by 70% in ten years, have been set.

Operational Risk Management (ORM) is an effective tool for maintaining readiness in peacetime and dominance in combat. The Navy's ORM program is modeled on the very successful Army program dating to 1991. This program is designed to eliminate unnecessary losses, whether in combat or training, by providing the unit commander with an understanding of risks associated with pending actions. The Navy is emphasizing ORM in multiple safety and education programs toward the goal of attaining significantly lower mishap rates. The knowledge gained will help define and control risks. Subsequent actions will improve effectiveness and contribute to a continued high state of readiness.

The Navy surface force had its second-best year ever in FY96, while naval aviation recorded one of its best years in history. Highly visible aviation mishaps received increased attention from many sectors, but the Navy and Marine Corps safety-of-flight programs — which already were under way in cockpit voice and flight data recorders, Global Positioning System navigation systems, and Ground Proximity Warning Systems — gained new footholds as baseline systems for long-term operational success and loss reduction. Other new safety initiatives throughout the Department include:

\* A revitalized explosives and weapon systems safety program;

\* Safety and survivability "Reinvention Lab" streamlined acquisition programs;

\* Changes in Marine Corps aviation from an hours-based to a sortie-based training program;

\* Improved base and station fire-fighting support, to include fire department consolidation.

### Improving Our Readiness

A fundamental part of readiness is to focus frankly and honestly on the chinks in our armor. For example, the proliferation of technology has had a revolutionary impact on the full range of warfare, presenting significant challenges in the form of enemy



access to satellite reconnaissance and secure communications, cruise missiles, chemical/biological weapons, sea mines and advanced capability submarines. Our naval expeditionary forces influence and work in the battlespace extending out from the shores of a potential aggressor. Therefore, the Navy-Marine Corps team has pursued aggressively initiatives to maintain dominance in the littorals. Some examples of our push to preserve our expeditionary edge include:

- Acquisition of the *San Antonio*-class (LPD 17) amphibious warfare ship;
- Procurement of the MV-22 tilt rotor aircraft to extend the Marine air-ground task force's influence inland;
- Development of organic minehunting capability for surface and submarine forces;
- Procurement of the F/A-18 E/F aircraft to improve power projection capability;
- Employment of Pioneer unmanned aerial

vehicles along with the development of follow-on systems to enhance the interoperability and connectivity of naval forces;

- Development of the advanced amphibious assault vehicle to provide a needed maneuver-at-sea capability;
- Conversion of *Inchon* (former LPH 12) into a mine countermeasures command-and-control ship;
- Development of advanced antisubmarine capabilities in our attack submarines, P-3C aircraft, and surface ships' sonar suites and weapon systems;
- Pursuing the Navy's theater missile defense capability for Aegis cruisers and destroyers;
- Development of extended-range 5-inch projectiles and a strike missile to revitalize naval fires;
- Arming SH-60 LAMPS helicopters with the antiship Penguin missile;



- Acquisition of the Advanced Deployable System to enhance the undersea battlespace picture and provide timely cueing to undersea warfare (USW) forces.

These programs typify the Department of the Navy's efforts to upgrade its capabilities as the force of influence and of choice in the littoral regions of the world.

### Readiness for the Future

Future readiness requires investment today. Both the Navy and Marine Corps are planning increases in procurement and research and development accounts to guarantee future readiness. This continues to be dependent on the need for readiness

today. New Attack Submarines and *San Antonio* (LPD 17) class amphibious ships will replace their aging predecessors in the near term. Next-generation platforms and systems, such as the Surface Combatant of the 21st century (SC 21), MV-22 aircraft, the Joint Strike Fighter, advanced amphibious assault vehicle, and theater missile defense are essential long-term investments. Where considered most cost-efficient, current systems —



such as the AV-8B Harrier aircraft and P-3C Orion aircraft — are being remanufactured or given service-life extensions. Using the development of the Cooperative Engagement Capability and the naval C4I strategy (Copernicus...Forward), the Department will leverage the capability of all present and future systems. Cost efficiencies also are sought by designing ships with reduced manning requirements, such as the new arsenal ship. But whether giving new life to old systems or taking a technological leap into systems of the next century, it is only through proper funding of modernization accounts that naval forces will be able to support the national security and military strategies in the future. However, increases in modernization accounts must come from continued reductions in infrastructure investment and other savings initiatives. The budget constraints challenge us to create and maintain the correct balance between current and future readiness. Both are important and neither can be ignored. The Department believes that within these constraints a correct balance has been attained.

# VI. TECHNOLOGY

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## Modernizing the Current Force

The Department of the Navy is investing in the platforms, equipment, and infrastructure necessary for success in the future. Our approach relies on an acquisition investment strategy that maximizes our scarce procurement dollars without compromising quality or losing critical capabilities. This strategy must capture the cutting edge of technology to guarantee the continued operational primacy of our Navy-Marine Corps team. Our goal is to maintain a balance between reinvigorating older platforms through technology insertion and acquiring the next generation of systems. A quick review of naval programs shows that we are meeting our goal.

Solid, proven platforms are superb candidates for modernization. *Arleigh Burke* (DDG 51) class destroyers, *Los Angeles* (SSN 688) class submarines, AV-8B Harriers, F-14 Tomcat, and the Marine Corps' light and medium vehicles are suited perfectly to this approach. Modernizing these platforms is fiscally sound. For example, a relatively small investment in *Arleigh Burke* destroyer modernization initiatives results in exceptional capabilities upgrades. Similarly, a remanufactured AV-8B saves approximately 23%, compared to the cost of a new aircraft.

Although modernization of major systems is appropriate in the short term, retaining our operational primacy requires recapitalizing our force structure. A successful recapitalization program requires continued funding support to meet production goals and acquisition timelines. Our investment strategy must remain executable, to avoid losing future capabilities.

New-generation platforms, including the New Attack Submarine, MV-22, Joint Strike Fighter, advanced amphibious assault vehicle, and Surface

Combatant of the 21st century (SC 21) are critical replacements for older technology. By the time some of these platforms enter active service, they will be replacing systems that have been on the front lines for 30 years or more. Our strategy maximizes the return on investment. One example of this strategy is the dual-track recapitalization philosophy being pursued with CVN 77. In addition to modernizing the carrier force, CVN 77 will incorporate innovative technologies for both existing and future aircraft carriers. Most important, CVN 77 maintains the carrier force level while facilitating long-term planning for CVX, a completely new and revolutionary air capable platform for the 21st century.



In another approach, revolutionary technology will be introduced through platforms such as the tiltrotor MV-22 Osprey, the replacement for aging CH-46E and CH-53A/D helicopters. The MV-22 will revolutionize the battlefield and lead to further use of advanced technology.

The Advanced Enclosed Mast System (AEMS) is an excellent example of using technology insertion to produce advanced equipment at a reduced cost. The AEMS encloses rotating antennas in a composite structure to reduce radar signature, improve sensor



performance, and reduce maintenance. Positioning sensors and communication equipment, an AEMS structure improves ship survivability and facilitates the integration of next-generation planar and embedded sensors. The AEMS will be installed on *Radford* (DD 968) during FY97 and is under consideration for *San Antonio* (LPD 17) class ships.

### **Exploiting Technology: Investing for our Future**

Every day, naval personnel operate complicated systems around the world in extremely diverse and challenging physical environments. To contend with these complex requirements, we must embrace change and keep pace with rapid technological advances. Training, materials, systems, and platforms all require cutting-edge technology. Consequently, the Department is using the latest business applications, commercial off-the-shelf (COTS) technology, and streamlined acquisition methods to expand capabilities for the future. These methods ensure new technology is readily available when needed. The use of COTS technology in such systems as Battle Force Tactical Training, C4I equipment, and submarine sonar processing and display equipment are examples of improving the pace of technology insertion into the Fleet.

Naval science and technology (S&T) programs continue to explore ideas that span the technology spectrum, such as basic and applied research, advanced technology development, and a vigorous manufacturing technology program. Some examples of Navy S&T programs that will be of great value to the Fleet include the "Mountain Top" cruise missile defense program — which achieved the first-ever beyond-radar-horizon engagement of cruise missile targets in 1996, using the new Cooperative Engagement Capability technology — and the Specific Emitter Identification program, which will allow tracking of individual ships by their unique radio-frequency "fingerprints." The Navy's Smart Ship project is another effort to exploit commercial technology. This pilot program

is designed to rapidly identify labor saving technologies and evaluate them in a designated test ship, *Yorktown* (CG 48). Specific initiatives designed to reduce manpower are being evaluated during FY97. Because science and technology opportunities are abundant in areas outside the Department, we actively foster partnerships with the other services, government agencies, academia, and industry to reduce acquisition costs. The Joint Direct Attack Munitions program and the Global Command-and-Control System are multiservice programs typifying these efforts.

Marine Corps S&T has focused on the land-warfare aspects of naval warfare, using Operational Maneuver From the Sea as the guide. Joint S&T investment with the U.S. Army has proved highly successful. Recently, the Target Location and Designation Hand-Off System — a Marine Corps Advanced Technology Demonstration — displayed the ability to locate mobile targets precisely and to transmit pre-formatted calls for fires rapidly. These efforts have achieved unprecedented improvements in responsiveness, accuracy, and lethality.

### **Excellence through Innovation**

Innovation occurs throughout the Department of the Navy. Although innovation in technology is key to future success, innovation in concepts is yet another engine that pulls the technology train. Experience from operations in the littorals and maneuver from the sea has resulted in such new platform and weapon concepts as the Arsenal Ship. In partnership with the Defense Advanced Research Project Agency, arsenal-ship technology efforts focus on demonstrating affordable and innovative enhancements to our current force. The arsenal-ship concept has the potential ability to mass firepower in the littorals to deliver strike, missile-defense, and naval fires. The arsenal-ship concept further investigates critical manpower savings and C4I linkage issues. The future concepts tested in the Arsenal Ship will become available for

incorporation in the SC 21 and other future platforms.

Innovations also are evolving around organizational structures, such as the Marine Corps Chemical-Biological Incident Response Force (CBIRF). The first of its kind, it connects electronically the aggregate knowledge of specialists located at institutions, schools, hospitals, and government organizations around the United States with the deployed unit. Intended to provide consequence management during chemical and biological incidents, the CBIRF first was deployed in support of the 1996 Summer Olympics and later to Washington D.C. to support the presidential inaugural.

Other innovations include the development of theater missile defense around existing Aegis hardware to enhance full-dimensional joint force protection in the littoral. In addition, increased peacekeeping and peace-enforcement operations result in the innovative development and use of nonlethal technology. The Marine Corps, as the designated Department of Defense Executive Agent for nonlethal weapons, is ensuring the timely development and fielding of these weapons throughout DoD. Deployable Marine Corps units already are equipped with several nonlethal weapons. We are striving to develop a flexible standoff capability by employing nonlethal weapons across the full range of conflict. These examples highlight the role of the Navy-Marine Corps team as innovators — innovators in technology, concepts, and organizations.

### Leading Through Innovation

Both the Navy and Marine Corps have developed the necessary institutions to experiment with and evaluate new ideas and equipment. These institutions ensure that the best of each concept is captured, developed, and efficiently implemented. Some of these institutions and forums include:

- **Commandant's Warfighting Laboratory (CWL)**, established in October 1995, serves as

the cradle and test bed for development of enhanced operational concepts, tactics, techniques, and procedures that will be progressively introduced into the Fleet Marine Forces in concert with new technologies. The CWL serves as the catalyst for the integration of new technologies and warfighting refinement into the Marine Corps. For example, Sea Dragon is the CWL's open process of technology exploitation and operational concept development. It seeks to build on existing strengths of the Navy-Marine Corps team and exploit innovative, competitive advantages in future combat. The Chemical-Biological Incident Response Force is one example of CWL experimentation coming to fruition. The CWL developed a Five Year Experimental Plan (FYEP) as the guideline for planning and experimentation. The FYEP is divided into three phases - Hunter Warrior, Urban Warrior, and Capable Warrior. The FYEP is supported by the Sea Dragon Advanced Concept Technology Demonstration, which examines the "Extended Littoral Battlespace." An experimental special purpose Marine air-ground task force serves as a test bed for experiments. The first advanced warfighting experiment, Hunter Warrior, will focus on expanding the area of naval expeditionary force influence in the early



stages of conflict. The emphasis will be on advanced command and control, fires and targeting,

innovative combat service support, and operations on an extended, dispersed, noncontiguous battlefield.

- **“Extending the Littoral Battlespace”** advanced concept technology demonstration (ACTD), recently approved by the Deputy Under Secretary of Defense (Acquisition and Technology), provides a means to demonstrate key elements of the Defense Science Board’s 1996 Summer Study. The purpose of the ACTD is to demonstrate the efficacy of emerging capabilities, to include theater-wide situational understanding, effective remote fires, and a robust interconnected information infrastructure, in providing significant increases in the effectiveness of naval expeditionary forces. This ACTD seeks joint participation and targets implementation of the advanced warfighting concepts outlined in *Forward...From the Sea*, *Operational Maneuver from the Sea*, *Joint Force 2010*, and *Joint Vision 2010*. The overarching objective of the ACTD is to demonstrate an enhanced C2/fires and targeting capability which will enable rapid employment, maneuver, and fire support from the sea of dispersed units operating in an extended littoral battlespace.

- **CNO’s Fleet Battle Experiments**, established in October 1996, takes forward-looking programs and integrates them with innovative operational concepts. We continue to exploit modeling and simulation in testing new systems and concepts. Yet, experimentation, through the use of operational prototypes or systems, is required to validate our models and refine our systems and concepts. We are establishing At-Sea-Battle-Labs to dovetail technological advances and innovative operational concepts with real world-training and simulation. Recent innovations operationally tested at sea include the Global Broadcast System and the Cooperative Engagement Concept Mountain Top experiment. In the future we will use the Fleet Battle Experiments to test CJTF/MAGTF Afloat, C4ISR, Arsenal Ship, naval surface fire support improvements and TMD. These experiments will focus on future programs that align the

Navy with *Joint Vision 2010* and demonstrate the innovative, yet enduring nature of naval capabilities.

- **CNO’s Strategic Studies Group (SSG)** recently was designated as the Navy Center for Innovation by the Chief of Naval Operations (CNO). Each year a dozen handpicked captains and colonels from the Navy, Marine Corps, and Coast Guard work with top students from the Naval War College and Naval Postgraduate School. These teams conduct ten month studies on issues identified by the CNO. The SSG consults with industrial leaders, scientists, and engineers from leading research and development facilities, fleet operational commanders, and officers developing military doctrine and operational concepts. Their efforts center on the use of new technologies addressing future naval challenges and developing the organizational and operational concepts needed to complement future Navy and Marine Corps systems.

- **CNO’s Executive Panel (CEP)** is designed to provide independent policy and technical advice to the CNO. Composed of leading experts from a variety of areas, the CEP studies significant issues identified by the CNO. One CEP task force continues its partnership with the Strategic Studies Group to foster strong, independent concept-generation teams in the area of naval warfare innovation.

- **Wargaming** continues as a valuable innovation tool. Institutions such as the Naval War College and the Marine Corps’ Wargaming Center

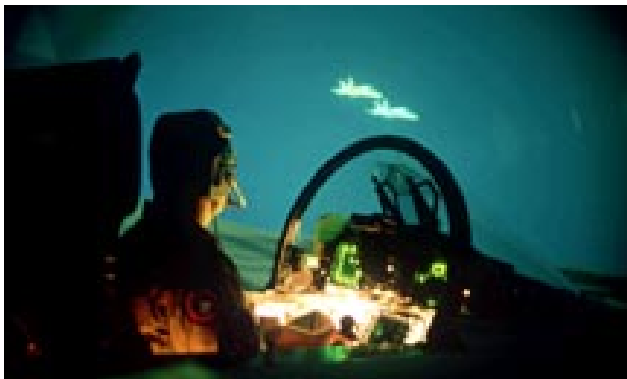




conducted or cosponsored numerous wargames dealing with evolving concepts and the Revolution in Military Affairs. These wargames identify deficiencies in research-and-development efforts and assist in developing the operational and organizational concepts of the future. Naval wargaming possesses a long, successful history of contributing to innovation. Today's wargames will lead to revolutionary changes on tomorrow's battlefield — changes that will test the employment of systems such as the Arsenal Ship and MV-22.

### **Improving Readiness through Modeling and Simulation**

Providing affordable quality training is the major training challenge. Technologies being explored will enhance skills of ground, sea, and aviation forces. The naval services are full-time partners with the Defense Department in modeling and



simulation. These initiatives form the foundation for future education, training, operations, analysis, and acquisition. The Joint Simulations System (JSIMS) represents true innovation and allows all services to benefit from a common framework, facilitated through a joint development effort. Anticipating an initial operational capability at the end of FY99, JSIMS will provide realistic and interoperable joint training for naval expeditionary forces. Other simulation efforts and implementing organizations include:

- **Navy and Marine Corps Modeling and Simulation Management Offices (NAVMSMO & MCMSMO).** NAVMSMO and MCMSMO were created to support technical and management initiatives directed by the Department of Defense and the Secretary of the Navy. These offices bring organization and focus to the development and use of modeling and simulation tools throughout the Navy and Marine Corps. They are the central agencies for the formulation and implementation of policy and guidance in modeling and simulation. Both offices are pursuing initiatives that harmonize management, minimize redundancy, sharpen requirements, improve joint program participation, leverage other initiatives, and verify the quality of modeling and simulation across all functional areas. In addition to coordinating among the two offices, they also cooperate with the Defense Modeling and Simulation Management Office, to ensure compatible model development and eliminate duplication of effort.
- **Marine Air-Ground Task Force Tactical Warfare Simulation (MTWS).** MTWS is a computer-assisted warfare gaming system supporting Marine Corps commander and staff training. The system provides a full range of combat models to support Marine Corps exercises.
- **Battle Force Tactical Training (BFTT).** BFTT supports realistic combat systems training in all warfare areas. BFTT allows ships to conduct operator- and unit-level training in port and at sea. Ships, crews, and battle groups use BFTT to exercise in a common synthetic joint warfare theater, regardless of actual location.
- **The Indoor Simulated Marksmanship Trainer (ISMT) and Infantry Squad Trainer (IST).** The ISMT/IST is an interactive videodisk-based system that realistically replicates the firing characteristics of 11 weapons and provides additional training in specified combat skills. The ISMT/IST also provides the capability of using simulation to

train Marines in the employment of their weapons and to enhance combat skills. The ISMT/IST can be deployed and used on board amphibious shipping.

- **Interactive Multimedia Acoustic Trainer (IMAT).** IMAT is used by the surface and submarine communities to provide realistic visualization of complex acoustic theory. This innovative device improves operator understanding of acoustic concepts and increases proficiency in target detection.
- **Combat Vehicle Appended Trainer (CVAT).** CVAT provides a deployable, high fidelity, full-crew, precision gunnery, networked trainer for the crew of the Marine Corps family of armored vehicles — such as the M1A1 Tank, Light Armored Vehicle, and Amphibious Assault Vehicle. The CVAT will use

simulation to train combat vehicle crews in the employment of their vehicle, to include driver, loader, and vehicle commander skills as well as gunnery and unit tactics. Simulation will complement and enhance training by providing more realistic performance conditions.

- **LCAC Full Mission Trainer.** The LCAC Full Mission Trainer is a simulator that provides realistic operator training at one-tenth the cost of underway operations.
- **Marine Doom.** Marine Doom is an interactive video game patterned after the popular commercial video game “Doom.” This game enables Marine fire teams to simulate an attack on an objective in a military-operation-in-urban-terrain environment. Use of Marine Doom teaches teamwork and the importance of mutual support.

## VII. EFFICIENCY

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Today's fiscal realities clearly call for efficient, responsible use of our precious resources. The Department of the Navy has been steadfast in its efforts to scrutinize every aspect of our operations, infrastructure, and methodology — for efficiencies and cost savings. We also are capitalizing on emerging technologies, employing lessons learned from other successful defense programs, and implementing acquisition policies that stabilize our out-year procurement funding. These efforts are building a foundation for our future success.

### Infrastructure Reform

**Base Realignment and Closure (BRAC):** The BRAC process is resulting in the most visible infrastructure reform. The Department of the Navy is aggressively implementing BRAC initiatives identified during the 1988, 1991, 1993, and 1995 commission rounds. By the end of FY96, 115 of the 178 required BRAC closures and realignments were complete. Remaining actions will be accomplished within the required six-year timeframe. The Department is intensifying efforts to implement BRAC actions to reap the projected savings. Prompt and efficient closure and disposal of excess infrastructure is expected to yield significant savings — in excess of \$2.5 billion annually, beginning in FY99. These funds can and must be directed to force modernization and support of the remaining infrastructure. These potential savings make it imperative that BRAC actions remain appropriately funded; otherwise, delays could reduce anticipated savings and create new closure costs.

The FY97 funding will complete all remaining BRAC 1991 moves and realignments, leaving the Department with most major closing actions complete and a substantial portion of environmental remediation actions under way. Our FY98 budget submission reflects a change in direction, with more funds dedicated to disposal actions than to construction and relocation. This shift ensures that

base conversion and redevelopment is accomplished with the adjacent communities in mind. The Department is working closely with local officials to ensure a smooth and efficient turnover.

One of our BRAC implementation goals is to improve efficiency at remaining bases and facilities. We will implement proven business practices and exploit new technologies while consolidating functions, programs, and processes to gain the highest possible returns from BRAC initiatives.

**Regional Maintenance Strategy:** The Navy is implementing a fundamental restructuring and consolidation for ashore maintenance capabilities and capacities to improve effectiveness and efficiency. The objectives of regional maintenance are the elimination of excess infrastructure and the creation of single, accessible, accountable maintenance providers for our customers. The process of integrating or collocating intermediate and depot-level maintenance activities is under way. Eight Regional Maintenance Center pilot programs have been established. The next step is to consolidate ship maintenance engineering and planning functions within Ship Availability Planning and Engineering Centers (SHAPECs). A SHAPEC pilot program is being conducted at the Portsmouth Naval Shipyard for SSN 688-class overhauls.



**Outsourcing and Privatization:** All services are pursuing the identification and subsequent implementation of outsourcing and privatizing initiatives. These initiatives are important for two reasons: the reduction of naval personnel, both military and civilian, over the past six years requires some shift in workload; and industrial technology application in critical military areas is faster and more efficient. In response to the Commission on Roles and Missions recommendations, the Department began to commercialize or privatize prudent areas where the largest returns were anticipated. Increasing efficiency through outsourcing and privatization provides potential benefits both to the Department and to the private sector.

**Smart Base:** Naval and Marine Corps bases are complex activities, similar to small cities. Numerous services are provided at these stations, where costs could be reduced by leveraging commercial technology or methodology. Consequently, testing will begin soon to determine potential cost savings under a concept entitled Smart Base. Experimentation will be conducted under the auspices of an Advance Concept Technology Demonstration and a Reinvention Laboratory, enabling the program to abbreviate acquisition procedures and waive certain regulations, thus speeding implementation. Two installations have been identified as test sites, and in cooperation with industry, academia, and federal and local governments, will evaluate a full array of promising cost reduction initiatives. Success will be judged by resulting efficiencies, such as the cost or manpower savings realized when compared to the initial implementation investment required.

**Industrial Base:** This year, a significant effort to focus on stabilizing the civilian shipbuilding industry occurred. Commercial shipyards are deeply involved in constructing *Nimitz* (CVN 68) class nuclear aircraft carriers, *San Antonio* (LPD 17) class amphibious warfare ships, *Arleigh Burke* (DDG 51) class destroyers, and *Seawolf* (SSN 21) class submarines — the pillars of our Navy and the most capable warships ever built.

The industrial base is facilitating efficiency by adopting innovative business practices that reduce costs, improve product quality, and strengthen defense partnerships. Government initiatives — such as multiyear procurement contracts and incentives for foreign nations to buy U.S.-built



ships — are important parts of stabilizing the industry. For example, foreign purchase of U.S. ships will spur commercial activity and allow direct application of lessons learned to military construction. Continued innovative practices are crucial to achieving a smooth transition into the future.

### Acquisition Reform

Focus during 1996 was placed on incorporating the tools provided through the Federal Acquisition Streamlining Act and the Federal Acquisition Reform Act; developing Integrated Product Teams (IPTs) and applying Integrated Product and Process Development to program management; expanding the use of Past Performance and Earned Value concepts; creating action teams to work Cycle Time Reduction projects; completing the move to performance-based specifications in the contracting process; and expanding the use of Single Plant Processes. In a report to the Office of the Secretary of Defense this year, we projected significant savings or cost avoidances through the use of these proven business practices. Some techniques, such as use of established material specification modifications or government-owned prototypes during production phases, are simple but



highly effective. Other initiatives, such as use of long-lead or multiyear procurement contracts, are more involved. Regardless of the complexity, all efforts contribute to time and fiscal savings and ultimately acquire the best equipment.

**Acquisition Reform Office:** The initial emphasis of acquisition reform was on major programs with the greatest potential for significant cost avoidances and cost reductions. We now seek to broaden our focus. The Acquisition Reform Office, organized last year with a 3-5 year charter, continues to serve as a catalyst for acquisition process change. The Department's guiding instruction for acquisition management was rewritten to include only mandatory requirements and allow program managers the freedom to tailor these requirements to their specific program needs. Future initiatives focus on total ownership cost, use of cost as an independent variable and integration of modeling and simulation technologies. As we move towards the 21st century, the Department will move closer to achieving a simulation-based acquisition system.

**Acquisition Center of Excellence (ACE):** In a groundbreaking ceremony on 17 October 1996, the Department of Navy began development of a research facility designed to combine cutting-edge technology with world-class business practices. At the heart of ACE's research capabilities is a collaboratory: a totally reconfigurable working environment utilizing high-powered computing technology. The collaboratory will support virtual prototyping of naval systems from concept and engineering analysis to production and support. The ACE will house the knowledge and combined expertise of hundreds of acquisition professionals, research scientists, management experts, and engineers. It will provide research and resources to assist acquisition professionals, contractors and customers in solving complex systems engineering and management challenges. The ACE will also serve as a host for many coalitions among the Navy, Marine Corps, industry, and academia to bring tools, successes and lessons

learned into the Department's acquisition environment. The facility will be operational by Spring 1997.

**Acquisition Reform Success Stories:** The Department of the Navy's bold approach and forward-looking strategy continues to accrue results through acquisition reform. Led by the Acquisition Reform Senior Oversight Council, the Department is applying world-class practices to attain cost and time reductions in the defense acquisition process.

- **Multiyear Contracts:** With congressional assistance, multiyear procurement contracts allow industry to offer the most for our investment. The Medium Tactical Vehicle Remanufacture program is an excellent example of significant cost avoidance through multiyear contracting. A total of 7945 five-ton trucks are planned for remanufacture beginning in FY99, with an estimated cost avoidance of nearly \$104 million attributable to approval of multiyear contracting. In another example, the Navy is pursuing multiyear procurement of Aegis destroyers through 2001. In 1996, this program authorized a package procurement of six ships over FY96 and 97, followed by multiyear procurement of 12 ships from FY98 through FY01. This effort provides industrial stability and the most efficient production rates, and will allow the Department to procure 12 Aegis destroyers for the price of 11.
- **The *San Antonio* (LPD 17) Amphibious Transport Dock Ship** achieved a cost avoidance of \$15 billion over the life of the ship class in design, procurement and ownership costs. During the current design phase, the program has reduced military specifications and standards, collocated its integrated product and process development teams, standardized unique systems, used commercial items, and applied modeling and simulation. The LPD 17 will invest in an integrated digital

product model and concurrent engineering processes during detailed design and construction.



- **The Cooperative Engagement Capability program** adopted a streamlined approach to cost estimating which achieved significant research, development, testing and evaluation and procurement savings. The program achieved these savings through reduced administrative costs, program management costs, military specifications and standards, and program documentation.
- **The New Attack Submarine (NSSN) program** achieved an estimated cost avoidance of \$450 to \$650 million. Integrated product and process design is providing measurable lead ship savings through elimination of design hours, preproduction planning, reduced change orders, use of a single design agent, and component savings through use of commercial-off-the-shelf and reengineered parts. The application of contract “teaming” allowed the participating shipbuilders to benefit from a consolidated modular construction “learning curve,” eliminated the need to maintain independent design and construction data bases, and reduced duplication of some construction and test facilities. The NSSN command, control, communication and information (C3I) program won the Secretary of Defense David Packard Award for Acquisition Reform Excellence. This

award highlighted one of many management and technological innovations employed by the NSSN program. Notably, it included the unprecedented application of cost as an independent variable, coupled with a technology refreshment process.

- **The F/A-18E/F Super Hornet program** successfully applied independent variable principles, integrated product teams, government-industry partnering, and concurrent design and manufacturing to achieve a cost avoidance of approximately \$3 billion. Implementing acquisition reform initiatives permitted achievement of the aggressive program milestones as the engineering and manufacturing development phase remains on cost and schedule. These efforts resulted in the Super Hornet receiving the first-ever Department of Defense Acquisition Excellence Award in 1996.
- **The Advanced Amphibious Assault Vehicle** is the Department’s first major program with nearly all acquisition reform initiatives embedded from the program’s start. These initiatives include the use of a system performance specification, virtual elimination of military specifications and standards, use of cost as an independent variable in trade-off analysis, creation of government and industry integrated product teams for system design and development, and co-location of these teams.

## Organizational Reform

**Operational Fleet Reorganization:** 1996 marked the first full year of implementation for the operational fleet reorganization. Adjustments were designed to maximize training efficiency at sea and eliminate non-mission essential training. These organizational changes were critical to meeting increased operational commitments worldwide. Changes included the stand up of 5th Fleet in Southwest Asia, Atlantic and Pacific Fleet reorganization into 12 core battle groups to enhance operational integrity, and establishment of

the Western Hemisphere Group to focus on naval operations in the Caribbean Sea and Eastern Atlantic Ocean.

**Marine Corps Process Improvement Program:**

The Marine Corps continues to improve the combat development system and its business enterprise by adopting proven DoD and industry techniques that reengineer critical internal functions and processes. Specifically, using both a business and an operational focus results in an infusion of readily available technologies, which streamline processes and subsequently realign resources throughout the organization. Mentoring by senior leadership provides a strategic business vision and establishes goals for improving the combat development system. Analysis of key processes such as resource allocation, force structure, and information management yields significant efficiencies that enhance our ability to “make Marines and win battles.”

**Incorporating Innovative Business Practices**

**International Cooperative Programs:** We are making great strides in cultivating international program opportunities that reduce naval technology and system modernization costs. Cooperative research, development, and acquisition activities on such programs as the Joint Strike Fighter,



Multifunctional Information Distribution System, and the Evolved Sea Sparrow missile are in progress already. International cooperation results in millions of research-and-development dollars

from foreign nations. Foreign military sales yield another major benefit beyond burden sharing and cost savings. Fielding common equipment with our friends and allies fosters interoperability and directly supports our coalition strategy. Continued pursuit of international activities will minimize duplicative investment and result in a greater number of high-quality, high-payoff cooperative programs in future years.



**Lightweight 155mm Towed Howitzer (LW155):**

The LW155 program demonstrates the inherent ability of Integrated Product Teams (IPTs) to create enormous efficiencies. By employing IPT concepts and leveraging data developed from earlier prototype weapons testing, the first three LW155 program milestones were passed within a year. The IPT not only coordinated the planning and documentation efforts but also focused and encouraged team members to meet schedule and performance goals. It also empowered team members with authority to make binding decisions reflecting best business practices and user requirements. The empowerment aspect shortened approval of the milestone package to three months instead of the normal six months. The success of the LW155 program — the recipient of the Department of the Navy’s IPT of the Year award — and its application of multiagency, multiservice IPT concepts are spurring implementation



of IPTs in lower-level programs. IPTs can improve significantly the way we acquire, field, and support systems and equipment.

**Predator Program:** Using proven business practices, the Predator missile program maximizes the use of existing technology and nondevelopmental components to reduce cost and risk. Predator also takes advantage of modular design to increase versatility for future change. Some of the savings include:

- Estimated savings of \$12 million in developmental costs using Tow2B warhead and Javelin rocket motor technology;
- Reduction of more than 1,500 parts to fewer than 300 through a risk-reduction effort during the demonstration/validation stage. This endeavor accelerated production by one year, saving an estimated \$12 million;
- Savings of approximately \$60 million for an Army program by capitalizing on the Predator efforts.

**Program Objective Memorandum (POM):** The Department of the Navy FY98-03 POM was an important benchmark in the integration of individual Navy and Marine Corps POMs. Coordination between the services began early in the Program Assessment and POM development phase and continued through POM submission to the Secretary of Defense. While each service developed its own POM, integration throughout the process ensured departmental requirements were articulated effectively, resources were better used, and the end product was attained in a more efficient way.

### **Efficiency through Environmental Stewardship**

Compliance with environmental protection programs requires both effectiveness and efficiency. The Department has achieved success in both areas. The number of known, contaminated sites stabilized at about 4,300 while site closeouts increased. Our total cleanup cost decreased by about \$200 million. Field personnel continue seeking and deploying effective new cleanup technologies and business practices in cooperation with regulators. In the area of pollution

prevention, our program to minimize hazardous waste through material reutilization is implemented in 85% of our ships (frigate-size and larger) and by more than 75 shore installations. Major efforts fully integrate environmental protection into the acquisition process.

The Department serves as the DoD Executive Agent for Clean Air and Clean Water Act implementation. We have achieved a noteworthy record in reaching consensus with regulators while preserving the Navy and Marine Corps mission capabilities. The Department worked successfully with Congress, other federal agencies, regulators, and environmental interest groups to amend the Act to Prevent Pollution from Ships. The new legislation authorizes the use of specially developed shipboard solid-waste processing equipment, which will be procured and installed through 1998.

Protection of wildlife and the land they live on is equally important. The Navy and Marine Corps manage a number of federally protected plant and animal species on their installations. Working with the U.S. Fish and Wildlife Service, endangered species concerns have been integrated into training and readiness requirements. Examples include: fencing of tern and plover nesting areas at Camp Pendleton and the Naval Amphibious Base Coronado, California, to prevent accidental entry during breeding season; protection of woodpecker nesting trees at Camp Lejeune; and requirements for vehicles to stay on roads in some parts of our training areas to protect the desert tortoise. In addition, through the Navy-led Department of Defense Partners in Flight Program, archived weather radar data is analyzed to determine peak neotropical bird migration periods, routes, and stopover locations on Department of Defense lands in order to reduce bird/aircraft strikes. This data is factored into the scheduling of training flights and operational exercises in areas of high bird migrations. These measures have led the U.S. Fish and Wildlife Service to conclude that the Navy and Marine Corps are providing superior levels of protection for sensitive species, thus obviating the need for externally initiated land use restrictions being placed on associated installations.



## VIII. PROGRAMS

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The budget for FY98 marks an important transition year. We will be well embarked on our recapitalization strategy to dedicate the increasing resource levels necessary to provide modern, capable platforms and systems for tomorrow's Navy-Marine Corps team. At the same time, we will be reaching the end of our projected resource downslope, and will begin maintaining an essentially level fiscal profile beyond FY98. The current budget attempts to negotiate the path from the point Congress will have led us through FY97, through the necessary reforms and efficiencies critical to long-term affordability, and to the continued satisfaction of our core warfighting requirements within the President's plan for Defense.

### Program Summaries

The following programs are key elements in building naval forces capable of protecting U.S. interests around the world today and into the 21st century. They represent an unprioritized, yet integrated, view of the wide range of capabilities necessary for the Navy-Marine Corps team to support and enforce national security objectives.

### *Shipbuilding and Naval Weapons Programs*

**Aircraft Carriers:** Twelve aircraft carriers form the centerpiece of naval global forward presence, deterrence, crisis response, and warfighting. In addition to their power-projection role, they serve as joint command platforms in the worldwide command-and-control network. *Harry S Truman* (CVN 75) is currently under construction at Newport News Shipbuilding and is expected to be commissioned in 1998. At that time, the Navy's oldest active commissioned ship, *Independence* (CV 62), will transition to the inactive fleet. CVN 76's keel has been laid for a 2002 delivery, and CVN 77 will enter the fleet in 2008, as the two



remaining *Kitty Hawk*-class carriers are retired. CVN 77 will act as a transition ship toward CVX, incorporating numerous new technologies and process design changes that will move naval aviation to a future carrier design. Selection of transition technologies will focus on life-cycle cost and manpower reductions. CVX development effort became an officially recognized program in 1996, and currently is examining the future sea-based tactical air platforms and the aircraft carrier that will support those platforms.

**Amphibious Lift:** Naval amphibious forces provide the most flexible and adaptive combined-arms crisis-response capability today and remain the nation's only self-sustainable forcible-entry capability. The current modernization plan will provide amphibious lift for 2.5 Marine expeditionary brigade (MEB) equivalents. The future amphibious force is being shaped in the correct number and types of ships that will allow the formation of 12 amphibious ready groups (ARGs) to meet our forward-presence, contingency, and warfighting requirements. The plan includes the completion in FY01 of the seventh *Wasp* (LHD 1)-class ship -- the centerpiece of the ARG -- and the delivery of the final *Harpers Ferry* (LSD 49)-class ship in FY98. However, a critical piece of our future amphibious force does not arrive until FY02. This is the *San Antonio* (LPD 17)-class of



ships. LPD 17 will incorporate a major improvement in command-and-control capabilities and enhanced ship self-defense systems, which will increase its ability to operate independently of the ARG when required. Most important, it is a critical link in completing the goal of a 12-ARG amphibious force. LPD 17 replaces the aged LPD 4, LKA, LST, and LSD 36 classes of ships and is key to regaining the full 2.5 MEB lift equivalents. Current amphibious lift is being augmented with a combination of Naval Reserve Force and Naval Inactive Ship Maintenance Facility assets - ships the LPD 17 eventually will replace. Construction of the second ship is planned for FY99 with future procurement planned for two ships in FY00.

Through this modernizing and tailoring of the amphibious fleet, over-the-horizon launch platforms will be provided for the MV-22 aircraft, the short-take-off and vertical-landing variant of the Joint Strike Fighter, the advanced amphibious assault vehicle and the already proven landing craft air cushion — all critical pieces in fully executing operational maneuver from the sea. Ultimately, the amphibious force will be composed of 12 LHA/Ds, 12 LPD 17s, and 12 LSD 41/49s; capable of forming 12 ARGs (or operating independently when necessary) and lifting 2.5 MEB equivalents in all five lift parameters (vehicle square foot stowage, cargo cubic capacity, troop capacity, vertical take off and landing capacity, and LCAC capacity).

**New Attack Submarine (NSSN):** The New Attack Submarine (NSSN) is tailored for the 21st

century joint littoral operations. NSSN incorporates the best new technologies, is designed for maximum flexibility and affordability, and will maintain U.S. superiority over all current and projected undersea threats. Its inherent flexibility includes space for mission-specific equipment, carry-on electronics, and remotely operated or autonomous vehicles. Improved electromagnetic and acoustic stealth, along with enhanced sensors and processing, will ensure the NSSN's ability to detect and avoid mines and destroy advanced-capability submarines. In addition, NSSN will be capable of interdicting shipping or defending sea lines of communication, a role that will become increasingly important as the number of our overseas bases is reduced. NSSN's clandestine strike and significant organic special-operating force capabilities will afford policymakers enhanced military leverage.

The cornerstone of the NSSN program is the design/build process. Using computer-aided design, engineering, and manufacturing techniques, the design process permits rapid assessment and evaluation of new technologies. This innovative process, coupled with new modular-construction techniques and contract teaming plan, fundamentally changes the way this ship will be produced and is the key to its affordability. Other features include:

- **Open Systems Architecture.** Using widely available public-domain standards, the combat, communications, and information systems will have industry-standard interfaces that offer portability and software reuse and simplify cost-effective future technology upgrades.
- **Fiber Optic Cable Systems.** A platform-wide fiber optic cable installation will be sized for future growth. The structure of the network simplifies the attachment and integration of new equipment in a plug-in/plug-out manner.
- **Commercial-off-the-Shelf (COTS) Electronics.** Use of commercially available electronics leverage the growth in signal and information processing and display technologies occurring in industry.

- **Isolated Deck Structure.** This design facilitates ease of equipment integration, provides shock and acoustic isolation sufficient to allow the use of COTS technology, and incorporates emerging noise-control technologies.

NSSN also plays a pivotal role in the Navy's recapitalization plan. By the year 2011, *Los Angeles* (SSN 688)-class submarines will start to reach the end of their service lives at a rate of three-to-four per year. The Navy needs to achieve a low, continuing, and efficient submarine construction rate to build our next generation of quiet submarines in adequate numbers to counter the proliferation of advanced capability submarines and submarine-related technology worldwide. Starting the NSSN construction in 1998 accomplishes this goal, effectively counters an increasingly sophisticated undersea threat, and is the foundation for future development and technology insertion into the submarine force.

**Maritime Prepositioning Force (MPF):** The 13 ships of the MPF continue to be a vital part of the Marine Corps ability to respond quickly to crisis worldwide. They also improve operational flexibility significantly for combat, disaster-relief, and humanitarian-assistance operations. In 1995, to ensure even better response, Maritime Prepositioning Squadron (MPS) One relocated forward from the continental United States to the Mediterranean. Procurement of three additional ships for MPF, known as MPF Enhancement, will provide Marine air-ground task forces (MAGTFs) enhanced capabilities in naval construction, medical support, and expeditionary airfield construction. The first MPF Enhancement ship is planned for delivery by FY99. Funding for the remaining two ships in the program was appropriated by Congress in FY97. Although the Aviation Logistics Support Ships (T-AVB) are not members of the MPF squadrons, they are an integral part of the MPF concept. The T-AVB ships provide rapid and dedicated sealift for the sustainment and maintenance of the MAGTF's aviation combat element, both rotary- and fixed-wing aircraft. These ships can provide repair capability onboard

or off load their equipment to provide shore-based support.

***Arleigh Burke (DDG 51)-Class Destroyer:***

The DDG 51-class ships are the finest multimission destroyers in the world. They play an integral part in power projection, including precision land attack through strike and naval surface fire-support capabilities. The DDG 51 class, along with its companion class of CG 47 Aegis cruisers, provide battlespace dominance to include joint force air defense for carrier



battle groups, surface action groups, amphibious ready groups, and joint expeditionary forces. To keep pace with advancing technologies and stay ahead of emerging threats, the Navy constructs Aegis destroyers in flights to introduce improvements in combat capability in a disciplined, yet expeditious process. Eighteen destroyers are already in commission, and another 20 are authorized or under contract. The Aegis destroyers requested under the multiyear procurement plan will continue to incorporate Flight IIA warfighting advancements, including improved surface-to-air missiles (SM2 Block IV and Evolved Sea Sparrow), embarked helicopters, and the battle force tactical trainer. The first Flight IIA destroyer, DDG 79, is currently under construction. Future ships will include such other essential improvements as the AN/SPY-1D(V) littoral radar upgrade, Cooperative Engagement Capability, and Theater Missile Defense Capability.



*Arleigh Burke*-class destroyers will represent the largest component of the early 21st century surface combatant force.

**Naval Fires:** Fire support requirements for the future are being addressed by wedded Global Positioning Systems and gun technologies that will enable surface ships to engage targets ashore more than 60 miles distant. Especially promising are composite-material technology breakthroughs, which could enable gun systems to engage targets beyond 100 nautical miles. Research-and-development funding has been allocated to develop these capabilities for future deployment in the fleet.

The Army's Tactical Missile System, or ATACMS, is a medium-range weapon that provides a quick-response strike capability to support our expeditionary forces within ten minutes of the call for fire. The Navy is evaluating a seagoing version of the Army missile for deployment on board surface ships and submarines. The quick-response strike capability of a Navy TACMS makes it ideally suited to engage mobile command-and-control, air-defense, and cruise-missile launch platforms. In the near future, the TACMS missile could provide an effective means to counter weapons of mass destruction (WMD) by providing the ability to destroy them without warning. A joint Army/Navy project currently under way will develop and test a warhead that will give TACMS the capability of destroying deeply buried or hardened targets, such as those used for WMD production and storage facilities.

The Navy is also investigating the concept of modifying the Standard missile for a surface-to-ground strike role. Studies are under way to determine which missile option is the most cost-effective way to provide a rapid response, all-weather strike capability in support of military power projection ashore.

**Arsenal Ship:** Arsenal Ship is a technology demonstration program exploring affordable and in-

novative enhancement to our existing force of carriers and strike capable combatants and submarines. Armed with missiles and with space for future extended range gun systems, Arsenal Ship has the potential to provide massive firepower in the early stages of a crisis, and to augment fire support to landing force or other ground commanders. These platforms could be continuously forward-deployed, available for rapid movement upon receipt of warning or changes in the tactical situation. Much like our Maritime Prepositioning Force, Arsenal Ships could remain on station as required for indefinite periods without dependence on host nation support or permission. The program is designed to develop technologies for incorporation in the SC 21 and other future platform types.

**Afloat Prepositioning Force (APF):** The APF is divided into three groups: 13 Maritime Prepositioning Force (MPF) ships loaded with U.S. Marine Corps equipment; 14 Army War Reserve, including 3 ships that support a U.S. Army heavy brigade; and 7 prepositioned ships dedicated to multiservice requirements such as transporting fuel for the Defense Logistics Agency, ammunition for the Air Force, and a field hospital for the Navy.



**Seawolf (SSN 21)-Class Attack Submarine:** *Seawolf*-class submarines were designed to operate autonomously against the world's most capable submarine and surface threats, and these impressive capabilities translate directly into enhanced joint-warfighting performance in high-threat littoral areas. These multimission combatants



will set the standard for submarine technology well into the next century.

In addition to their strong capabilities in countering enemy submarines and surface shipping, *Seawolf* submarines are ideally suited for battlespace-preparation roles. Incorporation of sophisticated electronics produces greatly enhanced indications and warning, surveillance, and communications capabilities. These platforms are capable of integrating seamlessly into a battle group's infrastructure, or shifting rapidly into a land-battle support role. With twice as many torpedo tubes and a 30% increase in weapons maga-



zine size over *Los Angeles* (SSN 688)-class submarines, *Seawolf* is exceptionally capable of establishing and maintaining battlespace dominance.

*Seawolf*'s inherent stealth enables surreptitious insertion of combat swimmers into denied areas. SSN 21 will incorporate special-operations force capabilities including a dry deck shelter (DDS) and a new, specially designed combat swimmer silo. The DDS is an air-transportable device that piggybacks on the submarine and can be used to store and launch a swimmer delivery vehicle and combat swimmers. The silo is an internal lockout chamber that will deploy up to eight combat swimmers and their equipment at one time.

*Seawolf* performed superbly during initial sea trials in July 1996, and demonstrated that it is the fastest, quietest submarine in the world. The ad-

dition of *Seawolf* to the fleet will significantly enhance the U.S. margin of undersea superiority against the most capable adversaries.

**Surge Sealift:** Surge shipping is the immediate transportation of heavy military equipment that our forces will need to meet warfighting requirements. The Navy's role in providing surge capability depends on a mix of sealift, including eight fast-sealift ships, Ready Reserve Force ships, and chartered ships from private industry. As a result of the Mobility Requirements Study, the Navy is currently undertaking a sealift expansion effort, to increase the Department of Defense's ability to move military equipment quickly in the event of a contingency or war. The study highlighted a strategic sealift surge and afloat prepositioning shortfall of five million square feet and recommended the acquisition of ships to meet it. A total of 19 prepositioning or surge Large Medium Speed Roll-On/Roll-Off ships will be required to satisfy the sealift requirements identified by the Mobility Study. Our budget reflects our efforts to meet these requirements through shipbuilding or ship conversion.

**Surface Combatant of the 21st Century (SC 21):** SC 21 is more than a replacement for ships retiring at the end of their service lives. As a land-attack combatant, SC 21 will support the land campaign by being able to operate in the littorals, will carry a mix of strike and close support weapons, and will be designed for joint interoperability. The SC 21 Cost and Operational Effectiveness Analysis (COEA) has begun the process of examining future mission requirements and alternative approaches to meeting those requirements. The COEA has just completed the first part of this effort, characterizing the mission deficiencies of the currently planned forces in the years 2015 and 2025. While the currently planned forces remain quite capable in the future timeframes examined, there are shortfalls in several mission areas, especially in terms of affordability. The second part of the COEA will evaluate alternative ship concepts that will better meet the requirements and



affordability measures. Innovative concepts of operation, building from Marine Corps and Army planning, will be combined with joint initiatives and emerging technologies to tailor the new capabilities to the requirements.

**SSN 688 Class Submarine Modernization:** The creation of the Acoustic Rapid COTS Insertion (A-RCI) program was based on a detailed review of the U.S. acoustic advantage compared to foreign nuclear and diesel electric submarines. This program is the centerpiece of *Los Angeles* (SSN 688)-class modernization effort. SSN 688 class submarines, which will comprise 68% of the attack submarine force in 2015, must be modernized to ensure that they remain effective when operating against increasingly sophisticated undersea adversaries. The use of COTS and Open Systems Architecture (OSA) will enable rapid (annual) updates to both software and hardware, and the use of COTS-based processors means that sonar system computing power can grow at the same rate as the commercial world.

A-RCI is a four phased transformation of existing sonar systems (AN/BSY-1, AN/BQQ-5, or

AN/BQQ-6) to a more capable and flexible COTS/OSA-based system. It also will provide the submarine force with a common sonar system. The process is designed to minimize the impact of fire-control and sonar system upgrades on a ship's operational schedule, and will be accomplished without the need for major shipyard availabilities. Phase I, which will commence in November 1997, will enhance towed-array processing. Phase II will provide additional towed- and hull-array software upgrades. Phase III will upgrade the spherical array, and Phase IV will upgrade the high-frequency sonar system on SSN 688I-class submarines. Each phase will install improved processing and control and display workstations. The current installation plan completes all SSNs through Phase III by FY03.

**Mine Warfare:** This is an essential supporting warfare capability which is integral to the ability of naval forces to open and maintain sea lines of communication and to dominate the littoral battlespace. An imposing array of modern mine countermeasures (MCM) systems continues to be developed and procured. Our dedicated MCM forces, composed of surface MCM ships, airborne MCM helicopters, and explosive-ordnance-disposal divers are among the best in the world. With the recent addition of the MCM command and support ship *Inchon* (MCS 12), the U.S. has a true expeditionary mine countermeasures capability.

We also are aggressively developing MCM systems that will be organic to the forward-deployed





carrier battle groups and amphibious ready groups. Focused science, technology, and developmental efforts are producing solutions to some difficult mine-warfare problems. For very shallow water, such efforts as the Shallow Water Assault Breaching System and the Distributed Explosive Technology Net System are on schedule in their development. These two complementary systems are designed to defeat mines and obstacles in the difficult surf-zone region. Another example is the Remote Minehunting System, which will provide a surface ship-hosted, mine-reconnaissance capability.

Augmenting dedicated and organic MCM capabilities are contributions from organizations outside of the traditional mine-warfare community. As an example, the Oceanographer of the Navy collects and disseminates environmental data that are essential for effective mine countermeasures. Mine warfare-relevant emphasis in projects dealing with MCM digital-route surveys; maintenance of a global mine-like contact database; and development of mine warfare-specific environmental databases augment our ability to rapidly access, avoid, or neutralize the sea mine threat.

***Tomahawk Baseline Improvement Program (TBIP):*** The Tomahawk land-attack missile provides Navy surface combatants and attack submarines with a potent long-range precision strike capability from the sea. The TBIP program was restructured in FY96 into a two-phase program that will provide a technologically advanced, yet lower-cost missile with an initial operating capability in 2000. The Tomahawk Block IV Phase I development provides a comprehensive baseline upgrade to improve system flexibility, responsiveness, accuracy, and lethality. Essential elements of the program include upgrades to the guidance, navigation, control, and mission-computer systems of the missile, along with the associated mission-planning systems and weapons-control systems. Phase I will provide a UHF satellite communication data link to enable the missile to receive in-flight mission reassignment messages, to



transfer health and status messages, and to broadcast Battle Damage Indication messages. Phase I also includes the development of an advanced antijam Global Positioning System receiver and antenna system for the missile. The Advanced Tomahawk Weapons Control System and Afloat Planning System will improve tactical responsiveness by allowing for mission-planning and modification afloat, thus reducing mission planning timelines in many scenarios. Concepts for the Tomahawk Block IV Phase II include a seeker, an antiarmor variant, and a possible hard-target-penetration variant.

***Ship Self-Defense Systems:*** The confining geography and proliferation of antiship cruise missiles combine to make littoral operations particularly challenging. Ship-defense systems provide a layer of protection that enables battle groups to position themselves for successful mission execution. Key programs include:

- **Quick Reaction Combat Capability/ Ship Self-Defense System:** The Navy developed a plan to integrate and automate the detect-control-engage sequence to provide a layered defense of electronic warfare and hard-kill weapons. More than 20 acquisition programs comprise this effort to provide a quick reaction combat capability (QRCC) and integrated command-and-control system. The QRCC system architecture integrates several existing stand-alone systems whose contributions to ship defense are combined, processed, and

controlled by the Ship Self-Defense System. The system provides multisensor processing, target identification, and an automated detect-control-engage capability. Shipboard sensors are fused to establish accurate, correlated, firm-track criteria as early in the detection phase as possible. Embedded electronic warfare doctrine automate soft-kill and hard-kill weapons to provide a rapid, layered defensive reaction to any detected threat. In late FY96 the program underwent testing and was declared potentially operationally suitable and effective. The system is scheduled to complete Demonstration/Operational Testing and achieve Milestone III approval in FY97.

- The **Rapid Antiship Missile Integrated Defense System (RAIDS)**, which complements the antiship missile defense capabilities of *Spruance* (DD 963) and *Oliver Hazard Perry* (FFG 7)-class combatants, is in production and has been installed in *Spruance* (DD 963). Installation in *Oliver Hazard Perry*-class ships will commence in FY97.
- The **Rolling Airframe Missile (RAM)** complements existing point-defense systems, providing unique capability in adverse electronic countermeasures and advanced threat environments. RAM is a lightweight, low-cost system that uses existing active and passive ship sensors to augment antiship missile defense firepower. RAM, a NATO-cooperative production program with Germany, is in production and has been installed in the LHA amphibious assault ships. Installations also are ongoing in LHD, LSD 41, and DD 963 class ships, and are planned in CG 47 through CG 51, CV/CVN, DDG 993 and LPD 17 classes.
- **Phalanx** provides a fast-reacting final defensive capability for surface ships against low-flying and steep-diving, high-speed antiship missiles. The High Order Language Computer upgrade will increase computer capacity and provide advanced fire-control processing

against maneuvering targets. The Phalanx Surface Mode, which allows engagement of surface craft and low, slow aircraft, will complete testing in FY97.



- The **Advanced Integrated Electronic Warfare (AIEWS)** program was accelerated by the CNO on 14 May 1996. Increment 1 of AIEWS is now scheduled for fleet introduction in FY01, and Increment 2 will be fielded by FY04. As the replacement system for the AN/SLQ-32, AIEWS will use open architecture to lower investment costs and improve system effectiveness. Increment 1 provides improved human-computer interface, emitter processing, and a new receiver package. Increment 2 will include an advanced electronic attack subsystem and off-board countermeasures.
- The **Evolved Sea Sparrow Missile (ESSM)** is a cooperative effort among 13 NATO Sea Sparrow nations to improve the ability of the Sea Sparrow missile to counter low-altitude, highly maneuverable antiship cruise missiles. The program evolves the existing RIM-7P Sea Sparrow missile with development of a new rocket motor and ordnance (warhead) upgrade. The ESSM will be installed on DDG 51, LHD, and CVN-class ships.

**Common Missile Development/Standard Missile:** The Navy continues to build on the proven Standard missile family by adding capability to counter existing and emerging threats. Two new upgrades currently are in production:



- The **SM-2 Block IIIB**, approved for full-rate production in FY96, incorporates a dual-mode seeker to provide the fleet improved capability against countermeasures, and also will be deployed on Aegis vertical launching system (VLS) cruisers and destroyers.
- The **SM-2 Block IV** will complement earlier SM-2 medium-range variants already on board Aegis VLS cruisers and destroyers. The newest variant, the SM-2 Block IVA, will build on the Block IV missile to provide increased defense against cruise missiles and theater ballistic missiles.

**Trident D-5 Missile:** The Department of Defense completed the Nuclear Posture Review in September 1994. This comprehensive assessment of the nation's long-term requirements for strategic deterrence concluded that the optimum force structure for the sea-based leg of the strategic triad in a Strategic Arms Reduction Treaty (START) II



environment would consist of 14 *Ohio* (SSBN 726)-class submarines, all equipped with the Trident II D-5 missile. To meet this requirement, four *Ohio*-class submarines currently equipped with the Trident I C-4 missile will be upgraded to

carry the larger and more capable Trident II D-5 missile. In addition, under the terms of the START II treaty, the Navy's *Ohio*-class submarines will assume a dominant position within the strategic triad by carrying approximately half of the allowable strategic warheads.

**Integrated Undersea Surveillance System (IUSS):** IUSS is comprised of fixed, mobile, and deployable acoustic arrays that provide vital tactical cueing to ASW forces. The IUSS is a model for innovation and the smart use of technology. Work stations, enhanced signal processing, and modern communication technologies enable remote array monitoring, which reduces manpower costs and improves efficiency.

The **Sound Surveillance System (SOSUS)** provides deep-water long-range detection capability. Consolidation of SOSUS by array retermination, remoting, or closure will be complete by FY97. Recent closures include Bermuda, Adak, and Keflavik. All other arrays will remain operational.

The **Surveillance Towed-Array Sensor System (SURTASS)**, a prototype twin-line array, was tested in a variety of locations around the world, with outstanding results. It is far superior to any other shallow-water passive towed-array system. SURTASS processing is being transferred to the AN/SQQ-89 towed-array sonar system to provide an immediate increase in detection capability without the need to modify or procure additional wet-end hardware. The minimum fleet requirement of eight SURTASS ships is funded through the FYDP.

The **Fixed Distributed System (FDS)** currently is operational and has successfully demonstrated the ability to detect, classify, and track quiet submarines. The outstanding results achieved to date validate the fact that acoustic ASW remains feasible against advanced-capability nuclear and diesel-electric submarines. New fiber-optic technologies, algorithms, and enhanced signal processing are enabling exploitation of weak

signals in environments of high background noise and provide timely and accurate detection and track data to tactical assets.

The **Low-Frequency Active (LFA)** system has detected submarines at long ranges. The first LFA ship, TAGOS 23, is under construction. In the interim, a leased ship, *Cory Chouest*, is being used as a fleet asset to test and validate LFA technologies. In addition, compact acoustic source technologies are under development that will provide a 50% reduction in weight and power requirements. Successful maturing of these technologies will allow LFA-type arrays to be deployed from existing TAGOS 19-class vessels.

The **Advanced Deployable System** is a theater-deliverable acoustic surveillance system that will provide continuous acoustic coverage over vast ocean areas for an extended period. This is a theater-surveillance asset that will provide unique surveillance information to tactical forces. It will be capable of detecting quiet nuclear submarines, diesel-electric submarines on the battery, ships exiting or entering port, or mine-laying operations. The importance of this portable capability will intensify as our surveillance requirements increase, owing to the Navy's focus on the littorals, the growing popularity of diesel submarines, and the downsizing of our own force.

The current IUSS program satisfies all military requirements and has been designed to accommodate future growth and capability expansion affordably, as new technologies appear and mature.

**Unmanned Undersea Vehicles (UUV):** The Unmanned Undersea Vehicle (UUV) program will extend knowledge and control of the undersea battlespace through the employment of clandestine off-board sensors. Although significant progress is being made with onboard sensors, it is clearly preferable to have an off-board sensor to accurately image tethered, volume, and bottom mines. Knowledge of the full dimension of the

mine threat, without exposing reconnaissance platforms, is vital to exploiting the tactical benefits of maneuver warfare.

An initial capability, designated the Near-Term Mine Reconnaissance System (NMRS), is a mine-hunting UUV, launched and recovered from a SSN 688-class submarine's torpedo tube. The UUV, in combination with an SSN, represents a long-endurance, clandestine, reconnaissance system capable of mapping the undersea environment and providing time-sensitive information on mining activities to the theater commander. The NMRS will provide an effective and much-needed capability to the fleet in FY98.

The Long-Term Mine Reconnaissance System (LMRS) will leverage developing technologies and lessons learned from the NMRS. The LMRS also will be launched and recovered through a submarine's torpedo tube, but it will have enhanced endurance, range, search rate, and total search-area coverage.

## ***Ground Weapons Programs***

**Advanced Amphibious Assault Vehicle (AAAV):** Once fielded, the AAAV will provide the Marine Corps a weapon system fully capable of implementing ship-to-objective maneuver as an integral part of the amphibious triad (AAAV, MV-22, LCAC) supporting operational maneuver from the sea. The AAAV, currently in the demonstration/validation phase, will allow rapid, high-speed maneuver of Marine infantry units as they emerge from amphibious



assault ships located well beyond the visual horizon. The AAV will insert forces in a single, seamless stroke, maneuvering to exploit weak points in enemy littoral defenses. Designed to possess more than three times the water speed of the AAV-7A1, it will have mobility equal to or greater than the M1A1 tank, will be one of only two nuclear-biological-chemical collective protective combat vehicle systems in the U.S. inventory, and will have twice the present armor protection. The AAV is targeted for fielding during FY06.

**Medium Tactical Vehicle Remanufacturing (MTVR):** The MTVR program remanufactures the aging medium fleet of M809/M939 series cargo trucks to a capability that meets Marine Corps requirements for added mobility and cargo capacity. Currently in the engineering and manufacturing development phase of the acquisition process, this effort will integrate industry-standard truck components on the existing five-ton truck. Added mobility is required to keep pace with fast-moving maneuver elements on the battlefield, and to rearm and refuel them without requiring return to a major road network. The combination of mobility and capability enhancements increases allowable cargo weights up to 8 tons off-road and 15 tons on-road. Significant improvements in maintainability and reliability also are expected, as a result of the reduced-shock-and-vibration benefit of the independent suspension. When fielded, the MTVR will be the world's most capable cargo truck in its class.

**Lightweight 155mm Towed Howitzer (LW155):** The LW155 is a joint program, with the Marine Corps as the lead service, and will provide organic artillery fires to Marine air-ground task forces. While retaining the same range as our current howitzer, the LW155 will have significantly improved mobility because of its reduced weight. This will result in increased survivability, responsiveness, and efficiency of artillery units. Capable of being transported by the

MV-22, the LW155 is designed for expeditionary operations requiring light, highly mobile artillery, as well as for conventional operations. The program is in the engineering and manufacturing development phase, with a contract expected to be awarded in the second quarter of FY97.

**Javelin:** Javelin, a soft-launched, medium-range, fire-and-forget antiarmor system, is a joint Army and Marine Corps program with fielding to begin in FY99. It will satisfy an antiarmor operational requirement for increased range, improved lethality, and gunner survivability. The Javelin consists of a reusable Command Launcher Unit and a missile, and can be employed as a stand-alone thermal sight. The launch motor allows it to be fired from enclosures and bunkers to enhance gunner survivability. Three training systems have been developed for basic training and field exercises.

**Predator:** Predator is a unilateral Marine Corps antiarmor program with fielding to begin in FY00. It will fill the Marine Corps requirement for a lightweight, man-portable, disposable, short-range weapon, lethal against current and future main battle tanks. The missile has a soft-launch rocket motor that allows the weapon to be fired from enclosures, and travels in a flyover, shoot-down profile to facilitate warhead penetration into the top of the target.





## *Aviation Weapons Programs*

**F/A - 18E/F Super Hornet:** The F/A-18 Hornet is the cornerstone of naval aviation strike warfare. This year's budget request includes continued funding for warfighting improvements to our existing F/A-18C/D aircraft as well as funding for the procurement of 20 F/A-18E/F aircraft. Procurement of these first low-rate-initial production aircraft will begin the orderly transition from the Navy's F/A-18C/D, and in FY01 the F-14A, to this improved strike fighter aircraft. Building on the proven design of earlier model F/A-18 aircraft, the F/A-18E/F will have greater range and payload flex-



ibility, an increased capability to return to the carrier with unexpended ordnance, room for avionics growth, and enhanced survivability features. It will increase the capability to conduct night strike warfare, close air support, fighter escort, air interdiction, and fleet air defense. The aircraft program is on cost, on schedule, and 800 pounds under specification weight. Most of the strike fighter assets on aircraft carriers after 2008 will be the F/A-18 E/F.

**MV-22 Osprey:** The MV-22 remains the Marine Corps' most critical acquisition priority. A revolutionary approach to power projection operations, the MV-22 tilt-rotor capability provides significant operational advantages over helicopters. The MV-22 is strategically mobile, allowing it to self-deploy globally, enabling greater

flexibility in planning. The combination of range, speed, and payload nearly triples the depth of the present-day battle space, complicating a potential enemy's defensive requirements. The designated replacement for the aging CH-46E and CH-53D helicopters, the MV-22 will serve as a critical element of operational maneuver from the sea. Funds were appropriated for procurement of five MV-22s in FY97, with an initial operating capability of 2001.

**AV-8B Remanufacture:** The remanufacture of the AV-8B Day Attack Harrier to the AV-8B Radar/Night Attack Harrier configuration will increase the service life and multimission capabilities of this proven aircraft in the role of offensive air support while saving 23% of the costs of a new aircraft. The AV-8B remanufacturing program extends the service life of 72 older Harri-



ers by 6,000 hours. It greatly increases the Harrier's night, reduced-visibility, and poor-weather capabilities for close air support, and also improves the aircraft's combat utility and survivability through standardized configuration and safety enhancements. Still the only tactical aircraft capable of operating from small flight decks at sea or unimproved areas on land, the remanufactured AV-8B is capable of delivering all future smart weapons — such as the Joint Direct Attack Munitions and the Joint Standoff Weapon — in support of ground forces. The first flight was conducted successfully in November 1995 and delivery of the first three remanufactured aircraft occurred this past year.



**Helicopter Master Plan:** The Navy Helicopter Master plan provides for a modernization of active and reserve helicopter forces, while reducing operating costs and infrastructure. This plan reduces eight Navy helicopter types (H-1, H-2, H-3, H-46, H-53, H-60B/F/H) to three (H-53, CH-60,



and SH-60R). Antiship and antisubmarine warfare roles will be executed by the SH-60R. The Master Plan stipulates 286 H-60B/F/H models will be remanufactured into SH-60Rs to extend the airframe life while upgrading warfighting capabilities to support increased surface ship requirements and improvements. Navy logistics, combat search-and-rescue, special operations warfare support, and utility missions will be performed by approximately 200 CH-60s. Leveraging on their commonality, the H-60 programs will simultaneously reduce costs and increase flexibility in meeting the Navy's tactical helicopter requirements until 2020.

**UH-1N and AH-1W Four-Bladed Upgrade (4BN/4BW):** The Marine Corps 4BN/4BW program is a comprehensive upgrade designed to remanufacture 280 existing AH-1W and UH-1N helicopters with identical dynamic components. Included in the upgrade is a newly developed four-bladed rotor system, a performance-matched drive train and tail rotor system, and common T-700 engines. The 4BW (attack version) also will

include a new, fully integrated cockpit — designed to reduce pilot workload and increase situational awareness — and structural modifications to accommodate six weapon stations. The 4BN/4BW program reduces life-cycle costs, increases operational effectiveness, resolves existing safety deficiencies, and extends the service life of both aircraft until a joint replacement aircraft is fielded. The Engineering Manufacturing and Development (EMD) contract for the 4BW and 4BN development recently was approved. The contract calls for the delivery of two 4BN EMD and three 4BW EMD helicopters for ground and flight testing. The development phase is scheduled for completion by September 2003.



**F-14 Update:** The F-14 Tomcat is now being configured as a potent precision strike fighter with incorporation of the Low Altitude Navigation and Targeting Infrared for Night (LANTIRN) Targeting System. With LANTIRN, the Tomcat now has a deadly accurate autonomous designation and targeting capability for delivery of laser-guided bombs. Beginning in 1997, all forward-deployed carrier airwings will have LANTIRN capability. In addition to LANTIRN, two major flight safety improvements for the Tomcat are also underway. The Digital Flight Control System (DFCS) has demonstrated significant improvement in departure resistance/spin recovery as well as much improved flying qualities during shipboard recovery. Installation of the DFCS will begin in June 1998. The TF30 Engine Breather Pressure Modification incorporates a new sensor in the engine that detects an abnormal increase in breather pressure and

allows the pilot time to take appropriate action to prevent catastrophic engine failure. Installation began in November 1996 and will be completed in 1997. With these warfighting and safety improvements, the F-14 series strike fighter will provide Battle Group Commanders with essential warfighting capabilities and additional flexibility until replaced by the F/A-18E/F.

**EA-6B Prowler:** This year, the EA-6B Prowler assumed its role as the Department of Defense's primary standoff radar jammer. The Prowler also supports joint operations by providing electronic surveillance, communication jamming capability, and employment of the high-speed antiradiation missile. The EA-6B's expanding role in joint operations requires 125 aircraft and the reestablishment of five additional squadrons in FY96 and FY97. Navy and Marine Corps EA-6B squadrons deploy to U.S. and coalition air bases overseas in support of joint requirements for tactical electronic warfare. These operations will be conducted in addition to the continuing EA-6B operations with Navy carrier air wings and Marine air-ground task forces.



Emphasis in the EA-6B program is on maintaining aircraft safety and inventory levels, achieving a standardized configuration, and improving its warfighting capability.

**Joint Strike Fighter (JSF) :** The Joint Strike Fighter Program, formerly the Joint Advanced Strike Technology Program, will develop and field

a tri-service family of next-generation strike aircraft, with an emphasis on affordability. The family-of-aircraft concept allows a high level of commonality while satisfying unique service needs. JSF will replace both the AV-8B and the F-18C/D, completing the Marine Corps neck-down strategy of an all short-take-off-and-vertical-landing fixed-wing force. For the Navy, the JSF will provide a survivable strike fighter to complement the F/A-18E/F. A primary objective of the JSF Program is the reduction of costs associated with development, production, and ownership. The program is accomplishing this by facilitating the services' development of fully validated, affordable operational requirements, and lowering risk by investing in and demonstrating key leveraging technolo-



gies and operational concepts. In November 1996, designs from two contractors were selected to compete in the JSF concept demonstration phase. Transition to engineering and manufacturing development begins in 2001. This joint approach to development is anticipated to produce significant savings, when compared to the costs of separate programs. Additional savings are provided by the United Kingdom's participation in the concept demonstration phase. Participation by other allied countries is anticipated.

**CH-53E Super Stallion:** Capable of lifting 32,000 pounds, the CH-53E is the only helicopter in production today that satisfies Marine Corps heavy

helicopter lift requirements. It is the ship-to-shore prime mover for the light armor vehicle, M-198 Howitzer, the HMMWV transport vehicle, and most Marine Corps engineering assets. Capable of transporting 55 Marines or 24 casualty litters, the Super Stallion has a secondary assault support mission to augment the medium-lift helicopter fleet. Aerial refuelable, the CH-53E has unlimited range for over-the-horizon special operations such as antiterrorist missions, embassy evacuations, and other crisis-response missions. Four CH-53Es, funded in the National Guard and Reserve Account in FY96 and FY97, will continue to provide needed modernization to the Reserve Force's Vietnam era RH-53D fleet.



**P-3C Orion:** The P-3C Sustained Readiness Program and Service Life Extension Program will extend the operational service and fatigue life of existing airframes to approximately 48 years, thereby delaying the requirement for delivery of a follow-on production aircraft until 2015. The Antisurface Warfare Improvement Program enhances the aircraft's ability to perform both autonomous and joint battle group missions in the littorals. Improvements will allow the P-3C to collect, correlate, and confirm tactical data and transmit information and imagery to the joint task force commander in near-real time. Both the active and reserve P-3C fleets are being converted to a common avionics force (Update III) that consolidates maintenance, improves training efficiency, reduces long term logistic support costs, and maximizes reserve forces participation.

**Air-to-Ground Weapon Programs:** The most significant joint air-to-ground weapon development initiatives are the Joint Standoff Weapon (JSOW), Joint Direct Attack Munitions (JDAM), and Standoff Land Attack Missile Expanded Response (SLAM-ER). JSOW is a family of air-to-ground glide weapons designed to attack targets from beyond enemy point defenses. JSOW is a Navy-led program and will be capable against a broad target set during day, night, and adverse-weather conditions. JSOW will replace a variety of weapons in the current inventory. JDAM is an Air Force-led program to develop an adverse-weather capability for general-purpose bombs through the use of strap-on Global Positioning System (GPS) guidance kits. SLAM-ER meets the Navy's requirement for a Standoff Outside Area Defense (SOAD) weapon. SLAM-ER is an adverse weather, precision-guided weapon that simplifies mission planning, increases penetration, and nearly doubles the range of the original SLAM. The SLAM-ER PLUS will add autonomous capability and Automatic Target Recognition (ATR) to the SLAM-ER and will be incorporated into all missiles. Joint Air-to-Surface Standoff Missile (JASSM) is the Navy's potential long-term answer to its SOAD requirement. JASSM is an Air Force-led program focused on developing an autonomous, adverse-weather, precision-guided, SOAD weapon with an ATR feature. The Navy also is planning to increase the quantities of laser-guided bombs through the Skipper conversion program. This program will help alleviate the current shortfall in precision-weapons.

**Air-to-Air Weapon Programs:** The AIM-9X Sidewinder and the AIM-120 Advanced Medium Range Air-to-Air Missile (AMRAAM) continue to be the foremost joint air-to-air weapons programs of the Navy and Marine Corps. The Navy-led AIM-9X program upgrades the current missile with an advanced guidance control section, a highly maneuverable airframe, and signal processors that significantly upgrade its infrared counter-countermeasures capabilities. The Air Force-led preplanned product improvements to the currently



deployed AIM-120 weapon include enhanced electronic counter-countermeasures and improved kinematics. The AIM-9X and AMRAAM missiles will serve Air Force, Navy, and Marine Corps aircraft well into the 21st century.

***Unmanned Aerial Vehicles (UAVs):*** Naval Forces currently are employing the Pioneer UAV system in support of a broad array of expeditionary operations, such as reconnaissance and intelligence support in Bosnia. Pioneer's potential replacement as the tactical UAV is "Outrider." It currently is in the advanced concept technical demonstration phase of development. The new tactical control system will enable broad UAV interoperability and connectivity to the naval command, control, computer, communication, and intelligence (C4I) architecture.



***Advanced Tactical Airborne Reconnaissance System (ATARS):*** As the only manned tactical reconnaissance system for naval combat aircraft currently under development, the ATARS will provide a major increase in timely imagery intelligence information to the theater, operational, and tactical commanders. The digital data-link capability of the system will allow all levels of command to receive time-sensitive imagery simultaneously, providing real-time imagery for accurate intelligence preparation of the battlefield and pre-strike and post-strike planning and analysis. ATARS is a suite of sensors and data-link pods that will be installed in the F/A-18D and associated ground stations. When fully operational,

ATARS will be joint data-link capable and will provide support to all services. Due for delivery in FY98, ATARS will provide high-resolution, real/near-real time, digital imagery, day and night, in all weather conditions — through infrared, electro-optical and synthetic aperture radar sensors. The imagery will be digitally linked via the Joint Services Imagery Processing System and Tactical Exploitation Groups. The F/A-18F will field reconnaissance capabilities that will capitalize on ATARS off-the-shelf advances.

### ***Command and Control and Other Programs***

***Navy-Marine Corps C4ISR:*** The naval command, control, communication, computer, intelligence, surveillance, and reconnaissance (C4ISR) vision, called Copernicus...Forward, is designed to support joint and naval warfighting strategies. It enables the Navy-Marine Corps team to expand, adapt, and integrate their C4ISR capabilities to meet the demands of the new strategic environment, emerging operational concepts, and evolving information technologies. While this vision provides a general naval approach to the implementation of Copernicus...Forward, there are, by necessity, unique requirements for Navy and Marine Corps application which make it useful to address these service-unique features in separate development and implementation concepts. Copernicus...Forward defines four essential functions of C4I that are being executed and implemented successfully in the fleet: connectivity; common tactical picture; sensor-to-shooter; and information warfare. The goal in every case is achieving technical and operational interoperability with the joint Defense Information Infrastructure Common Operating Environment as rapidly as possible. Some of the C4I systems now operational within the Navy and Marine Corps or under evaluation are highlighted below:

- **Connectivity** — The pipes that carry the information to the warfighter, to include:

- \* **Joint Maritime Communications Strategy (JMCMS)** is leveraging commercial technology to reduce costs and improve bandwidth

utilization. JMCOMS consists of three technical thrust areas: the Automated Data Network System (ADNS), a secure, interoperable, multimedia intelligent network management system; the Automated Modular Programmable "Slice" Radio, a programmable commercial hardware technology used with an integrated antenna to reduce topside space and weight that covers all frequencies up to 2 GHz; and the Integrated Terminal Program (ITP), a multiband satellite communications terminal covering the frequencies above 2 GHz. ITP exploits commercial technology to reduce costs by using common electronics, components, and antenna. Two major programs within JMCOMS are the Global Broadcast Service (GBS) and Challenge Athena.

\* **Global Broadcast Service (GBS)** is a revolutionary advancement in joint communications, providing high-speed one-way broadcast, video and data service. It provides high data rate service to many users simultaneously, using point-to-multipoint protocols. GBS becomes operational in February 1998, with the launch of the UFO-8 satellite.

\* **Challenge Athena** is a Navy program to provide leased commercial wideband satellite communications services to the ships. Challenge Athena supports: near real-time national imagery dissemination for precision targeting, mission planning, and battle damage assessment; national intelligence database connectivity; multiple-line telephone connectivity; video teleconferencing,



teletraining, and telemedicine; tactical and public-affairs imagery dissemination; and logistic support to numerous other high-volume data systems.

\* **Base-Level Information Infrastructure (BLII)** provides the Navy and Marine Corps sustaining base connectivity to the Defense Information Systems Network (DISN). It will modernize shore-based switches and cable plants and shipboard LANS to facilitate seamless connectivity and information flow.

\* **Single-Channel Ground and Airborne Radio System (SINGARS)** is a family of VHF-FM, line-of-sight radios built around a common receiver-transmitter. SINGARS provides the backbone for the single-channel radio net that will be used by all Marine Corps command-and-control and fire-support systems.

\* **Automated Digital Network System (ADNS)** provides timely data delivery service to or from all data user resources. The development of ADNS is based on the incorporation of commercial and government off-the-shelf hardware and software. Three prototype systems are installed in two surface ships and a telecommunications station for testing during FY97.

\* **AN/PSC-5 Enhanced Manpack UHF Terminal (EMUT)** is a lightweight, Demand Assigned Multiple Access (DAMA), manpack, line-of-sight and tactical satellite communications terminal that will serve as a primary command-and-control single-channel radio for MAGTFs and their elements. Employed down to the battalion level, it provides range extension and reliability. It will be used to transmit intelligence traffic, interface with SINGARS waveforms, and transmit/receive command-and-control traffic. Initial operational capability will be achieved in early FY98.

\* **Other Marine Corps C4 Programs:** Several other important programs in which the Marine Corps is an active participant are in the

engineering, manufacture, and development stage, and will increase capabilities in numerous areas. The SHF Tri-Band Advanced Range Extension Terminal (STAR-T), the Secure Mobile Antijam Reliable Tactical Terminal (SMART-T), the Digital Technical Control Facility, and the Tactical Data Network System are some of the systems that will improve the connectivity and interoperability of our communications systems internally as well as externally, and in some cases, greatly improve the mobility of our forces.

- **Common Tactical Picture (CTP)** — The knowledge and situational awareness that enhances combat identification, force coordination, and command and control. Associated programs include:

- \* **Global Command-and-Control System (GCCS)** is the single most important command-and-control initiative in the joint arena today. It is the backbone of the “C4I for the Warrior” concept. GCCS is a joint system that has reached its initial operating capability, replacing the Worldwide Military Command-and-Control System (WWMCCS), and will expand with applications across all functional areas. Full replacement of current WWMCCS capabilities was completed this year, ensuring a strong force deployment planning and execution command-and-control system.

- \* **Joint Maritime Command Information System (JMCIS)** is the core program of the Navy and Marine Corps’ part of the Global Command and Control System (GCCS). JMCIS, the first Copernican program initiated six years ago, combined numerous programs to provide the warfighter a common tactical picture on a common work station. JMCIS provides timely, accurate, and complete all-source C4ISR information management, display, and dissemination capability for warfare mission assessment, planning, and execution. JMCIS is compliant with the Defense Information Infrastructure Common Operating Environment and incorporates the MAGTF C4I software baseline.

- \* **Advanced Combat Direction System (ACDS)** is a centralized, automated command and control system, collecting and correlating combat information. It upgrades the Naval Tactical Data System (NTDS) for non-Aegis surface warships, aircraft carriers, and amphibious ships. A core component of non-Aegis combat systems, ACDS provides the capability to identify and classify targets as friendly or hostile, prioritize and conduct engagements, vector interceptor aircraft to targets, and exchange targeting information and engagement orders within the battle group and among different service components in the joint theater of operations.

- \* **Tactical Combat Operations (TCO)** system is an automated capability for processing battlefield information. Achieving its initial operating capability in FY96 with a purchase of 334 units, the TCO System provides the Marines the same automated operations system currently used by the Navy. This system is built around JMCIS, which brings a major increase in interoperability to the services. Currently, the Marine expeditionary force and Marine expeditionary unit headquarters element have an interim capability, with a full operational capability expected at the end of FY98.



- \* **SABER** provides situational awareness and automatic GPS position reporting for tactical mobile units. SABER information is injected directly into the JMCIS picture.



- **Sensor-to-Shooter** — The process by which connectivity and the common tactical picture combine to provide near real-time targeting information to the shooter, include:

- \* **Cooperative Engagement Capability (CEC):** The increased complexity of emerging threats in the air defense arena makes it necessary to link geographically dispersed sensors of differing capability with all potential firing platforms. CEC harnesses the technology, known as sensor netting, that makes this possible. With CEC, it appears to each shooter's combat system as if every netted sensor is that unit's own sensor. Engagement using remotely provided track data is possible for the first time. In addition, the ability to develop composite tracks means that every participating unit has an identical, real-time picture of the battle space, as well as identical identification information. With the addition of the airborne element of CEC in the E-2C Hawkeye, scheduled for FY99, the reach of CEC will be dramatically increased, and the potential for overland engagement of cruise missiles greatly advanced. CEC technology continues to mature. In January and February 1996, CEC was an integral part of the Cruise Missile Defense Advanced Concept Technology Demonstration, known as "Mountain Top," in which the Navy demonstrated, for the first time, an over-the-horizon engagement of a cruise missile through the use of remotely located sensors and illuminators on a simulated airborne platform. Subsequently, in September 1996, the initial operational capability of the first shipborne system was attained. Also during FY96, the Army and Air Force each undertook extensive studies aimed at determining the potential application of CEC to their service-unique systems.

- \* **Theater Ballistic Missile Defense (TBMD):** Sea-based TBMD is considered essential to protect expeditionary, forward-deployed elements of our armed forces and coalition allies, including population centers. The Navy Area TBMD System, which will field a user operational evaluation system capability in FY99, is critical

to support littoral warfare and provides for engagement of theater ballistic missiles (TBMs) in the terminal phase of flight. It serves to protect the nation's forcible-entry capability from a TBM attack. The Navy Theater-Wide TBMD System will add ascent and mid-course intercept capability, providing defense of the theater of operations. The Navy TBMD will be: able to operate independently of constraints; highly survivable; rapidly relocatable; self-sustainable; and dramatically cost effective, by leveraging existing capabilities and engineering bases. Both programs, as currently designed, are compliant with the Anti-Ballistic Missile Treaty.

- \* **Marine Corps Aviation C4 Improvements:** Quantum improvements continue in systems that support the aviation combat element of the MAGTF. Phase One's initial operational capability (IOC) of the Advanced Tactical Air Command Central (ATACC) occurred in FY96, and is the integrating link between the aviation element command and control (C2) and the MAGTF's C2. The ATACC provides planners and operators with the automated assistance needed to effectively supervise, coordinate, and direct the execution and planning of all MAGTF tactical operations. IOCs also were met during the year for the Improved Direct Air Support Central (IDASC) Product Improvement Program (PIP) and the Tactical Air Operations Center (TAOC). The ATACC provides great enhancements for interoperability with the Navy's Joint Maritime Command Information System and the Air Force's Contingency Theater Automated Planning System, while mobility is considered the key feature in the IDASC PIP.

- \* **Joint Tactical Information Distribution System (JTIDS):** Critical to the ability of Navy tactical aircraft, ships, and Marine air-command-and-control systems to operate in a joint environment, JTIDS is an advanced radio system that provides secure, jam-resistant information distribution, position location, and identification capabilities in an integrated form for tactical military operations. Nineteen have been acquired to date,

with five more scheduled for FY97. A prototype system for High Mobility Multi-Wheeled Vehicle (HMMWV)-mounted modular JTIDS terminal currently is in the engineering and demonstration stage. JTIDS will be integrated into aircraft carriers, surface warships, and amphibious assault ships, F-14D and E-2C aircraft, the Marine Corps Tactical Air Operations Center and Tactical Air Command Center. In the future, surface ships, submarines, and F/A-18 aircraft will receive JTIDS functionality via a smaller, lighter, less-costly version of JTIDS still under development. In addition, JTIDS has been identified as the preferred link for Theater Ballistic Missile Defense programs.

**\* Marine Corps Fire Support C4 Improvements:** The Fire Support Command and Control System (FSC2S) is an interim system providing semiautomated tactical fire support and technical artillery fire-control functions for MAGTF operations. The follow-on Advanced Field Artillery Tactical Data System, which will completely automate fire support C2, is scheduled for fielding in FY98. The Target Location, Designation, and Hand-Off (TLDH) is a man-portable tool for fire support observers and controllers to locate targets with GPS accuracy, designate them with a coded laser as appropriate, and pass them to the appropriate fire-support system for resolution. This is a key enabling capability, which will maximize the effectiveness of supporting fires by accommodating current and planned laser-seeking precision-guided munitions. TLDH will provide the interface with the Advanced Field Artillery Tactical Data System and with digital delivery systems on board aircraft, and will use existing and planned communication assets for message transmission and receipt.

**\* Advanced Tomahawk Weapon Control System (ATWCS)** is a significant upgrade to the current system, and will reduce overall reaction time, enhance training capabilities at all levels, reduce operator workload, and improve Tomahawk strike effectiveness. Improvements will include software, hardware, and firmware modifications that will introduce new capabilities, such as contingency-strike

operations planning, embedded training at all levels, and a simplified man-machine interface. ATWCS incorporates an open architecture to provide for future growth, eliminates stand-alone Tomahawk desktop computers, and enhances command and control interoperability.

- **Information Warfare (IW):** Actions taken to access or affect information and information systems, while defending one's own systems. The goal of these activities is to achieve information superiority, the degree of dominance in the information domain that permits the conduct of operations without effective opposition. Programs supporting this objective include:

**\* Common High Band Data Link-Shipboard Terminal (CHBDL-ST)** provides a common data terminal for the receipt of signal and intelligence data from remote sensors and the transmission of link and sensor control data to airborne platforms. CHBDL-ST will interface with shipboard processors of the Joint Services Imagery Processing System-Navy (JSIPS-N) and the Battle Group Passive Horizon Extension System-Surface Terminal (BGPHEST). CHBDL-ST will process link data from BGPHEST or Advanced Tactical Airborne Reconnaissance (ATARS) aircraft configured with modular interoperability data link terminals.

**\* Joint Deployable Intelligence Support System (JDISS):** As a segment of JMCIS, JDISS provides common intelligence, communications, and office automation applications not only for U.S. naval and joint operations, but NATO and coalition operations as well. JDISS provides a responsive, secure exchange between and among intelligence centers and operational commanders, including access to national and theater data bases, and imagery. JDISS gives commanders what they need, when they need it, by providing "demand pull" as well as "smart push" intelligence, and delivers a broad base of training and user support to Fleet Commanders and naval components worldwide who operate in the joint domain.

**\* Intelligence Analysis System (IAS)** is an all-source fusion center that is the hub of the

Marine air-ground intelligence system. Operational testing of the system occurred during the year, with an initial operational capability expected in FY97. It is a completely mobile system with multiple analyst work stations, which can be configured for the higher commands or down to the battalions and squadrons. IAS hosts the Secondary Imagery Dissemination System and is able to link with other systems, such as Department of Defense Intelligence Information Systems.

**\* Tactical Intelligence Information Exchange Subsystem-Phase II (TACINTEL II+)** is a computer-based message communication system for automatic receipt and transmission of special intelligence (SI) and special compartmented information (SCI) messages geared primarily to contact reports and other tactically useful information. TACINTEL II+ implements the Copernicus vision for joint C4I interoperability using open-architecture standards. The full capability will include voice, message, and data transfer among SCI-capable ships and aircraft, with gateways to shore nodes.

**\* MAGTF Secondary Imagery Dissemination System (SIDS):** Currently undergoing an Operational Assessment with the 15th and 26th Marine Expeditionary Units, the manpack SIDS device provides the capability to electronically collect, manipulate, transmit, and receive imagery products throughout the MAGTF, as well as to adjacent, higher, and external commands and other theater commands, and to receive secondary national collector's imagery. The MAGTF SIDS software is resident in all versions of the Intelligence Analysis System. An initial buy of ten occurred in FY96 with an initial operating capability expected in FY97.

**\* Battle Group Passive Horizon Extension System-Surface Terminal (BGPHEST)** extends the battle group's line-of-site radio horizon and enhances joint interoperability by controlling remote sensors in an aircraft's sensor payload to relay radio transmissions to the ship's surface termi-

nal via the Common High Bandwidth Data Link (CHBDL). The primary aircraft employed for this task is the Navy's ES-3A Viking; additionally, BGPHEST will be interoperable with the Air Force's U-2 reconnaissance aircraft.

**\* Marine Corps Intelligence Programs:** The Marine Corps' research, development, and acquisition of tactical intelligence systems, as well as aggressive manpower and training initiatives, continue to provide MAGTF commanders and their staffs with enhanced intelligence support. In 1996, the Navy-Marine Intelligence Training Center graduated its first class of multidisciplined MAGTF intelligence officers. MAGTF intelligence and force-protection capabilities will be strengthened with the creation in FY97 of the Marine Corps' first Counterintelligence/Human Intelligence Company, by consolidating into one unit the existing Marine Expeditionary Force Counterintelligence Team and Interrogator-Translator Team personnel and equipment assets. Under the joint umbrella, the Marine Corps continues to install the Joint Worldwide Intelligence Communication System (JWICS) at its major bases and the Marine Corps Intelligence Activity, to gain access to the national intelligence community.

Improvements in tactical intelligence capabilities are being addressed through research, development, test, and evaluation and procurement investment in programs within the Joint Military Intelligence Program and Tactical Intelligence and Related Activities. The Marine Corps is addressing shortfalls in its imagery intelligence capabilities. The Joint Services Imagery Processing System National Input Segment provides deployed Marine forces with national imagery support. In addition, each MEF will receive a Tactical Exploitation Group to receive, process, and disseminate imagery from F/A-18D ATARS-equipped aircraft, and imagery downlinked from UAVs and U-2s, as well as other theater and national collectors. The Marine Corps also is completing acquisition of a manpack digital camera and secondary imagery dissemination systems, to enhance tactical access to imagery and imagery-derived products.



Marine Corps signals intelligence (SIGINT) improvements include procurement of the Radio Reconnaissance Equipment Program SIGINT Suite-1 and product-improvement upgrades to the Mobile Electronic Warfare Support System, the Technical Control and Analysis Center, and the Team Portable COMINT System. We are also pursuing systems that will help the Marine Corps benefit from the latest commercial technology and maintain our signal exploitation advantage over potential adversaries, in projects such as the Navy's Cryptologic Carry-On Program and the Marine Corps/NSA Radio Battalion Modernization and Concept Exploration Project.

**\* Information Warfare (IW) Education and Training:** In FY99, the Department of the Navy will reassess its priorities to further improve Defensive IW readiness, in response to the Naval Research Advisory Committee recommendations. Education and training are critical to IW awareness, and the Navy is the joint lead for IW training. IW education and training is conducted at Naval Telecommunications Training Center Corry Station, Florida, at the Fleet IW Center, and at the Naval Postgraduate School.

**Norway Air-Landed Marine Expeditionary Brigade (NALMEB):** The NALMEB is the Marine Corps' only land-based prepositioned stock and is a cost-effective deterrent to assist in the protection of NATO's northern flank. Through burden-sharing agreements with Norway (renewed this year), the program cost is minimal and the agreement serves as a tangible reaffirmation of U.S. commitment to NATO and to our Norwegian allies.

**Asset Tracking Logistics and Supply System (ATLASS):** ATLASS is the Marine Corps operational and retail level supply, maintenance, and material readiness system and is interoperable with joint systems. ATLASS provides comprehensive connectivity to higher, adjacent, and supporting headquarters. This improves asset visibility and logistics status for commanders. The development

of ATLASS included functional and technical integration of Marine Corps ground maintenance and supply systems with the Navy maintenance and supply systems under the Naval Tactical Command Support System (NTCSS) umbrella. Subsequent ATLASS initiatives will continue on a migratory path with NTCSS, further standardizing Navy-Marine Corps business processes and resulting in greater levels of interoperability.

**Nonlethal Weapons:** On 22 March 1996, the Secretary of Defense designated the Marine Corps as the executive agent for the Nonlethal Weapons (NLW) program. Since that date, the Marine Corps has established an integrated product team to develop the framework for a NLW program that will ensure unity of effort among the services and enhance the timeliness of fielding NLW systems to users. To this end, the Marine Corps developed a mutually supportable memorandum of agreement, which addresses the overall conduct of the NLW efforts and codifies responsibilities



for NLW management cells, to include: a NLW Directorate, a Joint Concepts and Requirements Group (JCRG), and a Joint Acquisition Group (JAG). The Commandant's Warfighting Laboratory (CWL) continues to coordinate NLW testing within the Sea Dragon Advanced Technology Concept Demonstration, to identify areas of applicability. As a result of the unified effort of all participants, and the coordination of the JCRG, JAG, and CWL, a funding profile has

been established to support NLW efforts in the out years.

***Nuclear, Biological, and Chemical (NBC) Defense Programs:*** Numerous enhancements are being pursued that will increase the effectiveness for Marines to operate in an NBC environment. Some of these are:

- Light NBC Reconnaissance System (LNBCRS)
- Joint Service Lightweight Integrated Suit Technology
- Small Unit Biological Detector
- Joint Warning and Information System

These programs, in concert with the latest stand-up of the Chemical-Biological Incident Response Force (CBIRF), highlight the importance the Marine Corps is placing on the future NBC threat to our forces.

## IX. CONCLUSION

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The ultimate value of any organization lies in its ability to perform when required. In 1996, the Navy-Marine Corps team responded successfully around the globe and across a full range of employment — from peacetime presence, through humanitarian assistance, to crisis response and combat. On any given day, approximately 30% of the Navy and Marine Corps' operating forces — more than 50,000 men and women and 100 ships — are deployed worldwide, with nearly half of our ships underway for training or directly supporting our national security goals. For example, the bold movement of carriers *Nimitz* (CVN 68) and *Independence* (CV 62) into the South China Sea during March 1996 provided the appropriate level of national resolve to contain a crisis between China and Taiwan. Simultaneously, *George Washington* (CVN 73) surged from the Mediterranean Sea into the Indian Ocean to maintain vigilance in the volatile Persian Gulf region. In the eastern Pacific, *Carl Vinson* (CVN 70), completing final training exercises in preparation for deployment, was ready to sail on a moment's notice had the Taiwan Strait crisis continued to escalate. In April, the *Guam* (LPH 9) amphibious ready group and 22d Marine expeditionary unit rapidly repositioned from the Mediterranean Sea on short notice to provide embassy protection and coordinate evacuation operations as the joint task force commander in two separate West African countries. In September, forward-deployed surface ships and a submarine

were called upon to attack targets with cruise missiles in a coordinated response to Iraqi aggression. Throughout the year, naval forces provided vital support for U.N. peacekeeping efforts in Bosnia and counterdrug operations in the Caribbean and Eastern Pacific. Within the continental United States, our Navy explosive ordnance detection teams and Marine Corps Chemical-Biological Incident Response Force supported special requirements of the 1996 Atlanta Summer Olympic Games. Likewise, Marines immediately deployed manpower and equipment to fight forest fires in California, and the Navy supplied the core resources to conduct the recovery operation of TWA Flight 800 off Long Island, New York. As in past years, the Navy-Marine Corps team, with its inherent mobility, firepower, flexibility and self-contained sustainability, showed its ability to respond successfully to a diverse range of missions.

The Department of the Navy has charted a course for the future which combines the finest Sailors and Marines in the world with the proper tools and training to execute our National Security Strategy and National Military Strategy. Because of our continuing emphasis on people, readiness, efficiency, and technology, the Navy-Marine Corps team is on-station, on-call, and provides enduring impact...From the Sea: today, tomorrow, and into the 21st century.



